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Provincial Water Supplies
WITH
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OF
METROPOLITAN AND PROVINCIAL WATER WORKS.

BY

ARTHUR SILVERTHORNE, Assoc. M. Inst. C. E.,
CONSULTING ENGINEER.

LONDON:
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1884.

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INTRODUCTION.

The readers of these pages will hardly fail to observe that the portion referring to Statistics has chiefly been compiled from contributions furnished by the Local Authorities or Companies representing the localities dealt with. Without such co-operation it would not be possible to present a compilation of this kind. I feel therefore deeply indebted to the Mayors, Chairmen of Water Committees, Town Clerks, Engineers, and Borough Treasurers who have afforded me the opportunity of promoting the publication of Statistics which, merely in the nature of a public interchange of results, afford a striking testimony to the scrupulous integrity with which everything connected with our great municipal institutions is conducted in this country.

To the Companies represented here I also owe a special notice of acknowledgment, since their returns undoubtedly increase the value of the comparative results.

ARTHUR SILVERTHORNE.

1, WESTMINSTER CHAMBERS,
VICTORIA STREET, LONDON, S.W.,
October 1884.

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PROVINCIAL WATER SUPPLIES.

> "Considerable change of opinion has necessarily taken place as to the relative merit of wells and drainage areas for procuring large supplies of water for important towns. The estimates made by engineers as to the proportion of rainfall capable of being collected in large impounding reservoirs have been found to be much exaggerated, especially in years of considerable drought, and it is probable that in future the sinking of deep wells must extensively be resorted to for the purpose of procuring water where the drainage areas seem inadequate to yield the necessary quantity."
>
> *Treatise on Water Works for Cities and Towns.*—SAMUEL HUGHES.

It is now three years ago that the subject of water supply was approached statistically by the writer under the somewhat limited aspect presented through municipal purchases of water undertakings.* The result of a careful inquiry into the progress and prospects of a considerable number of water works of various importance then strengthened the view that some useful results might attend a compilation embracing all important undertakings, without distinction of origin, since some very large water works are in the hands of companies; and there is another distinct class of works initiated by the local authority without the interposition of purchase at all. The present summary of statistics will therefore be found to include undertakings answering to these descriptions:—Companies' undertakings, original municipal works and water works acquired by purchase. This, it is felt, must afford a more representative character to any views founded upon the consideration of the results presented to the reader. Attention should be drawn to the fact that the question of water supply in these pages has had necessarily to be restricted to the consideration of the supplies of large towns, all the smaller places being excluded. The latter present, of course, an interesting field for inquiry.

The legislative law to which water supply is subject in this country has not received much amendment of late years. Independently of local Acts, the special measures that govern the subject are the Water Works Clauses Act, 1847, and the Public Health Acts, 1848, 1875; so that we are still principally dependent, in respect of a service which affects the welfare and comfort of every home, upon an Act which is thirty-seven years old.

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* "The Purchase of Gas and Water Works" (Crosby Lockwood and Co., London).

There has been a great industrial movement forward since that date, and the conditions of supply as well as its responsibilities have undergone much alteration. The value of real property, the increase of population, the conditions of assessment, the development of the manufacturing supply, the requirements of sanitary science, have certainly contributed to prepare for a measure of a more searching and protective character than that which may now be claimed for the Act of 1847. There are, however, in that measure many provisions which afford sufficient indications that the framers of it looked forward to that era of reduction which has actually been realised upon increasing supplies in the case of the twin industry, gas, for which a similar enactment was passed in the same year. The clauses 79, 80 were clearly provided to meet an anticipated reduction of rates which it is to be feared has never been realised; and the present position of the undertakings in general may be very much likened to what the gas supply would be at present if these undertakings were still working within the original maximum rates sanctioned under their earlier statutory Acts.

There is a circumstance which emphasises this view still further; the revenue from water works has developed, not only in the proportion of new house supplies, but also out of the increased rateable value of premises. That circumstance, which certainly operates principally in large cities, should not, however, militate against the appropriation of this increment of value; but certainly, where it can be shown to constitute a large source of annual increased receipt, it appears to furnish a proper ground for a reasonable reduction in rates from those originally sanctioned by the Legislature.

These considerations do not appear to have entirely escaped the attention of the ratepayers, and water rates have been recently, more particularly in the metropolis and Sheffield, resolutely challenged by public agitation.

Parliament was also seized with this question, a few Sessions back, by the Metropolitan Board of Works. The Corporation of London introduced a Bill this Session; but in neither of these cases has any practical result been achieved. A legal decision of the House of Lords, *in re* Dobbs and the Grand Junction Water Company, attracted considerable attention lately; and upon the points of law then raised in favour of occupiers it may be necessary to dwell later.

This indifference of Parliament arises chiefly out of the great difficulty of dealing equitably with a subject upon which they really have little or no information to assist them, and the public mind is not properly educated on the various points and principles which govern the question of water supply. They believe they have a grievance which Parliament is unequal to remedy.

There are certainly many difficulties in the way of obtaining reliable information concerning water supplies; incorporated companies, strong in the protection and security afforded by old Acts, have no inducements to publish their working results, while local authorities, although far more liberal in this respect, as I can bear ample testimony to, have occasionally good reasons for withholding theirs from anything like comparative criticism. Another difficulty in the way of legislating upon a uniform basis is that the companies and municipal bodies may have a common interest in opposing such legislation. The reason for this can only be understood from a careful consideration of the actual situation.

There undoubtedly are still to be found some very important and influential water companies in England, such as at Sheffield, Bristol, Newcastle and Gateshead, South Staffordshire, Staffordshire Potteries, Norwich, Portsmouth, &c. Then to these must be added the London water companies—a powerful host in themselves. Yet these great undertakings are but in a minority compared with the water supply of English cities and middle-sized towns now entirely in the hands of corporations, by purchase or otherwise. In new districts, however, and now comparatively small places, a considerable number of companies are annually incorporated, chiefly through the facilities of provisional-order legislation. They will also, no doubt, grow in importance at a more rapid rate than would have been the case a few years ago, the reason for this being that suburban districts are growing in the sense of even depopulating the chief centres out of which they originate.

It does not appear that the old-established companies pay larger dividends than 5½ to 6 per cent.; in general, they have not been able to do so, having had much the same difficulties to contend against as appears to have been the case with a large number of corporations. The latter, who have to meet redemption of capital, and have, in the policy they have followed, had chiefly the same advisers, are nearly in an identical position; their payments on account of repayments of capital and interest will generally be found to average 5½ to 6 per cent. where there are no rates in aid. A feature common to both is that the full statutory limit of assessment on annual value is usually exhausted in the country, and it is easy to infer therefrom how this must always unite both sides against any interference with annual value which would prejudice their interests in common. This is one of the insuperable difficulties in securing any legislation of a uniform kind likely to afford relief to the heavily-rated water consumer.

A consideration of the causes leading up to these joint results may reveal some shades of difference in origin between the two classes of undertaking, but generally they can be sufficiently explained by the large cost which has attended the construction and maintenance of most of the great water works sanctioned by Parliament.

The pioneer works, if the companies may so be called, enjoyed some slight advantage, especially in that class of works known as gravitation schemes, labour being cheaper than it is now; but, as far as it can be ascertained, the demand for constant supply and the great waste of water, which for some years characterised all water undertakings, frightened their promoters and advisers into great and unnecessary extensions. These extensions, intended to guarantee speculative requirements, had often to be decided upon many years in advance, and one feature common to them and very objectionable was, that interest on the capital so employed was always paid out of the latter instead of revenue. In some works under construction from seven to fourteen years, this apparent item of cost has swollen the actual outlay to very large proportions.

In support of this view, it may be mentioned that the proprietors of the Sheffield Water Works were under a statutory injunction to lay water on under constant pressure by the 30th July, 1869. In prospect of the likely increase that might attend this, they proceeded, under an Act of 1867, with the construction of two immense impounding reservoirs, the Dale Dyke and Damflask, upon an outlay of upwards of £666,000. The latter of these two has only been recently completed. But in the result, it has not been necessary to draw a single gallon from either of these up to the present. The supply did actually reach 40 gallons a head, but under the beneficial influence of efficient regulations it gradually fell, until now Sheffield is a town in which the supply of water is nearer 16 gallons per head than 40, with water perfectly unrestricted in its legitimate use.

It is probable that some companies have also freely availed themselves of the means they get through incorporating Section 56 of the Companies Clauses Act 1845, to convert borrowed money into share capital. These reasons are sufficient in themselves to furnish the *raison d'être* of low dividends concurrently with maximum rates.

The corporations appear to have reached the same result by a slightly different mode.

There were no annuities to pay, and no borrowed moneys for conversion where no purchases had to be previously made; but they have also constructed works in which the principle of providing compensation water to millowners and others has entered too largely. Corporations must have been advised that they could sell water at a profit for manufacturing purposes. It is difficult to understand what other inducement could have led great towns to adopt the perilous responsibility of supplying neighbouring townships under parliamentary guarantee, at rates since proved to be unremunerative. Upon these, it must be feared, the liabilities for redemption of debt have pressed heavily, and there is little to be wondered at that the corporations have been unable to show, with some exceptions, better results than the companies.

But yet another class of undertakings have fared much worse than the above. These are the undertakings, insufficient in their own resources, for which large premiums have been paid to their owners by town councils. These purchases have rarely failed to demonstrate later their own improvidence and the necessity for large extensions, the cost of which is too frequently underrated, and, between the excessive valuation of the former and the ultimate costliness of the latter, the ratepayers have rarely escaped the imposition of rates in aid, to supplement maximum water rates.

It is the object of these remarks to endeavour successfully to demonstrate to what are principally due these untoward results, and especially with what class of works they are chiefly associated, for undoubtedly all the undertakings recorded in the returns accompanying this work are very far from answering to the previous description. Indeed, some have been initiated and managed with great ability, and we are confirmed by that experience in believing that water can be supplied abundantly, as well as cheaply, to large and small communities; and it is desirable that the principles that establish those results should be as clearly defined as those which appear to contribute to their opposite.

We have so far alluded to the great cost of these undertakings in chiefly contributing to an unsuccessful commercial result. But it is right to point out how great have been the difficulties which hydraulic engineers have had to contend against in dealing with towns situate over geological formations incapable of furnishing a supply of any magnitude whatever, except through the means of great impounding and catchment schemes. Indeed, it is extremely flattering to those engaged in these numerous enterprises that their efforts have been attended with that degree of finite success that may be ascribed to them now, after so many years of persevering energy.

When the time will have come for the historians of the future to dwell upon the stupendous progress of the Victorian age—the marvels of steam locomotion, with its perfect network of railroads; the number of England's splendid dock works and harbours of refuge; a world-encircling girdle of telegraphy; naval fleets of impregnable iron-clads; the great town drainage works that have added to the scale of longevity—can it be doubted that their record will especially enrol with these those practical and permanent achievements of hydraulic engineering of the last half-century in which two contemporary names bear so distinguished a share?

The criticism of the hour must, however, be confined to narrower and more prosaic views—a contributory cause to the cost of water works of this class are the compensation clauses that Parliament, in its discretion, compels the towns to submit to.

It has been the practice to allow one-third of the total available rainfall as compensation, leaving two-thirds for town uses. This one-third has been usually settled at 10 inches of rainfall, and this is translated into a measurable quantity the delivery of which is regulated at so many cubic feet per second to the millowners whose streams are alleged to be affected by the impounding of the waters in their districts. This necessitates the construction of reservoirs sufficient in extent to collect this additional supply; and there appears to be very few towns that have not suffered heavily from this iniquitous arrangement, for in practice the compensation, so far from being one-third of the total amount collected, repeatedly proves a far more serious figure. At Halifax, for instance, more than 14 inches of the available rainfall, or 450 millions per annum, is disposed of in this way, which involved the construction of enormous works.

The compensation frequently far exceeds the supply applicable to the district; this is shown to be the case at Bolton, where the compensation is actually 36 cubic feet per second, which amounts to 9,180,000 gallons per diem, and has to be delivered every twelve hours. This is nearly double the amount delivered to the town for all purposes. All these compensation supplies are preferential, and there is no doubt that they increase enormously in value properties which have no claim to it whatever, and which were previously dependent on a most contingent supply of water-power. This state of things has contributed so large an addition to the cost of all the modern gravitation schemes that it is amazing that it has not been more seriously resisted. Parliament will certainly have to reconsider its views and established practice on this point at no short distance of time. Where towns are contributing to works of public utility it is scandalous that they should have either to buy up these landowners' rights or submit to duplicate, perhaps, the necessary outlay on projected works for this cause alone.

The ordinary consumer and ratepayer will probably be disposed to go no further than the sanitary aspect of a supply of water, and it is by no means certain that he is not right; but it is noticeable that in Yorkshire and Lancashire water schemes another influence of a purely commercial kind has governed the extent and magnitude of the present works, which has heightened their cost very much. Nominally the water works have been constructed on hygienic grounds, but, as they have invariably preceded efficient drainage schemes, they may be more correctly ascribed to the influence exercised in town councils by manufacturers who have seen in an abundant water supply a prospect of cheapening and improving the manufacturing processes they were engaged in. The objection to this can only be limited, for many of these districts would sink in importance without trade, they are interested in trade flourishing, and the traders, of course, pay for the water. There is no doubt that when trade is good the manufacturing supply by meter is very great in these localities; and some people will be startled to find that in a town like Bolton the manufacturing supply contributes £11,556 per annum out of a total revenue of £37,607 properly applicable to Bolton, nearly one-third. Bolton, it may be mentioned *en passant*, is a town in which the administration of water supply appears better balanced than anywhere else. But in other towns the result has been different; and where a languishing trade has prevailed, the deficiency in the manufacturing contribution, always in the nature of a fluctuating one, has to be made good by the householder, who suffers the imposition of a rate in aid in consequence.

At Halifax, where the receipts from manufacturing supply are nearly equal to those due to house assessment of water rates, this is very strikingly shown; and one may well wonder what is likely to be the position of these towns, with their enormous debts unredeemed, should these fluctuating supplies fail them in a considerable degree at any time.

The present returns furnish sufficient particulars of this kind to render any further allusion to this class of undertaking unnecessary. Enough has been said to emphasise the fact that a large number of undertakings depend on these trade supplies, and have, in fact, been constructed with a view to supporting them. Smaller districts, drawing their supplies from large ones under parliamentary guarantees as to price, chiefly enjoy the advantages of getting their water under cost price, and usually form an adjunct of these systems.

It is probable that if many of these towns had, in the origin, obtained a fuller knowledge of the liabilities they were assuming, they would not have entered into these complex schemes, involving as they did costly parliamentary opposition at the outset, and works which have occupied many years in execution, and have been found bristling, in too many instances, with engineering difficulties of a formidable kind.

The cost of the new Rochdale Water Works, now nearly completed, appears to have amounted to £680,000. In the year 1866 these works were contemplated to cost £110,000. These water works are reputed to be capable of supplying 50 per cent. more than the existing population, and at the present state of increase would be equal to the supply for more than 12 years longer.

The experience of Doncaster affords the same view. The works, commenced in 1873, were reckoned to cost £80,000. They were completed in 1880 upon an outlay of £170,000. The new water works of the Keighley Corporation, reckoned in 1870 to cost £60,000, ultimately amounted to £186,000.

The increasing cost of gravitation schemes is a matter that does not admit of any doubt whatever, and at this stage it may be interesting to quote in support of it the remarkable testimony furnished by Mr. Thomas Hawksley, M.Inst.C.E., in his presidential address to the National Association for the Promotion of Social Science, at Liverpool, in 1876:—

> "To provide a town with water of a suitable quality is now a matter of great difficulty and much expense. Competent and available sources are becoming fewer and fewer, and must in general be sought at distances always becoming more remote. Moreover, the value of land, labour, and materials is almost day by day enhancing, and so rapidly and steadily that the present cost of a reservoir is, as I know by repeated experiences, double what it was less than thirty years ago. Indeed, the present average expense of procuring and distributing a gravitation supply of one million gallons per day, obtained from a distance of only 10 miles, is rarely less than £160,000, and not very unfrequently even a larger sum. Taking into account the interest on the capital invested, the redemption-money, the repairs and maintenance, the rates and taxes, the working expenses and the incidental disbursements, the cost of one million gallons a day thus obtained commonly enough amounts to £12,000 a year, and hence the cost of 1,000 gallons of water now amounts to nearly 9*d.* net, whereas in my own bygone days 4*d.* or 5*d.* per 1,000 gallons was considered a rather extravagant charge.
>
> "I place these facts before you (continues Mr. Hawksley) that you, as sanitarians, may become aware that the popular outcry on the subject of water charges, and against the suppression of unnecessary, reckless, and wicked waste, is wholly unwarranted, and all the more so in the case of the communities which are in the receipt of one of the greatest, although the least ostensible, of blessings—namely, a constant and unlimited supply of pure water, delivered at high pressure, constituting a living spring in every man's house, available at any moment for every purpose of necessity, comfort, or convenience."

These words from the lips of the engineer of the Great Rivington Pike Works (Liverpool), of a hundred other water works in this country, and from the eminent projector of the new Vyrnwy scheme, might well, from one point of view, answer the purpose of a treatise on the subject, for they may be understood to condense the experience of half a century of professional experience. They show, however, in a fuller degree than has been yet expressed here, how injudicious and unfair it must prove to the ratepayers to create undertakings on a basis to supply manufacturers by meter with large quantities at 3*d.*, 4*d.*, 5*d.*, and 6*d.* per 1,000 gallons, when the water actually costs more.

Where this has been done, it can certainly be shown that the rates are very high, too high by far. Some of these towns have lately taken to applying to Parliament to sanction higher rates:—Rochdale

(Session 1884) obtained increased rates, from 10 per cent. to 12½ per cent.; Heywood (Session 1883), from 7½ to 10 per cent. But by far the greater number that have become involved in these difficulties have submitted to public rates in aid or transfers from the borough fund, which amounts precisely to the same thing.

Dunfermline, in Scotland, pays a public rate of 4*d.* in the £. This proved insufficient, and the amount is further supplemented from a fund, *i.e.*, "Common Good of the Burgh."

At Keighley the public rate is 4*d.* in the £, and this has had to be supplemented by a transfer from the gas department, amounting last year (1883) to £3,750. Incidentally it should be noticed that this really munificent contribution is made from the department presided over for several years by Mr. Alderman R. L. Hattersley (Mayor 1884), and managed by Mr. John Laycock. With 17-candle gas at the low price of 2*s.* 6*d.* per 1,000 feet, this is certainly one of the best-managed gas undertakings in the Yorkshire and Lancashire districts.

The Doncaster Corporation made a transfer of £3,560 12*s.* 3*d.* from the borough fund (1883), to make up the required water revenue. Their case is peculiar; it might almost be said unique. The town has no borough rates, but enjoys a very large income from various town properties, the races, and lastly, the gas works. So that in this case the transfer does not affect the ratepayer. Very few towns enjoy so desirable a position.

At Aberdare the public rate is 3*d.* in the £—£2,059.

At Heywood there is no public rate, but the deficiency has hitherto been charged upon the district rate of the borough. Last year this was £5,196.

At Over Darwen, a comparatively small place, the deficiency has amounted in 10 years to £12,569. There is no public rate, but the profits from the gas works are transferred to make up the water revenue. Last year (1883) the deficiency was £1,523.

At Merthyr Tydvil there is a transfer from general district rate to the water revenue account amounting to £3,926 (25th March, 1883).

Dewsbury contributes a public rate of 1*s.* in the £—£4,750.

Paisley, a large undertaking, only contributes a very small public rate, in fact 1*d.* in the £—£955.

Swansea has no public rate, but the annual loss is provided for by the general district rate, and calculated to represent £1 15*s.* per cent. upon the present outlay on works.

Greenock has a public rate of 1¾*d.* per £ on actual rent—£2,029; but this is very small in relation to the total revenue.

Blackburn, which has been completing recently the Whitendale Valley scheme, had previously no public rate, and charges £6,740, the amount last year (1883) required to balance revenue account, to capital. The public rate now levied is 6*d.* in the £.

Huddersfield had a public rate of 6*d.* in the £, yielding £8,868. There was, nevertheless, a deficiency of £11,192 on last year's working (August 1883), so the corporation determined to reduce the public rate to 3*d.*, and advance the usual charges all round *one-fifth.*

Rochdale had a transfer from borough rates in 1883 of £8,156, on account of deficiency of water revenue; the losses since 1866 having reached the large sum of £54,430. In fact, the position of this undertaking is very serious, for the town clerk is reported to have told the Committee on the Rochdale Corporation Bill of this Session, that in 1885, when they begin to repay the capital money borrowed, their deficiency would be still larger. He also is reported to have stated he could not see that the deficiency would be wiped out this generation, and is further reported to have explained to the Committee "that as to the £90,000, which it was alleged had been paid out of capital, whereas it ought properly to have come out of revenue, he supposed it referred to the interest on money expended during the construction of the works, and as such he maintained it was a proper charge to put to capital." Mr. Z. Mellor explained that "in works, the construction of which occupied a number of years, it was only right that the interest on money expended upon them should, until they become available for use, be reckoned as part of their cost."

The total capital spent is put at £680,000. This is independent of the annuities paid to the late company. It is unfortunately true that this practice can depend on precedents especially in railway practice; but its application to this class of undertaking seems peculiarly opposed to the interest of the ratepayers.

At Bury there is a small public rate of 2*d.* in the £, amounting to £1,692, proportionately small compared with the receipts.

The Halifax Water Works disclose a state of things which is not very hopeful. There is no actual public rate, but the amount transferred in aid of water revenue from the borough fund in 1882 stands for £5,628. It appears that the whole amount so transferred from the borough fund accounts in aid of water works revenue, since 1856, is no less than £78,074, and that with interest charged at 4½ per cent. the total indebtedness amounts to the sum of £96,504.

The supply is of a mixed kind. The principal revenue is derived from trade services by meter, and from supplies in bulk to local boards. It is one of the largest trade supplies in England, and should it fail the Corporation at any time it must leave it in great straits.

The water supply of Halifax is, no doubt, a splendid and most ambitious undertaking in point of magnitude; and the unusual resources in the shape of revenue at the command of the water committee render it almost inexplicable how the department has ultimately been brought into its present position. A careful examination into the antecedent circumstances of these works reveals, however, that from an early period a very large portion of the available supply has been habitually sacrificed to leakage and waste, and that at a critical moment of the history of the undertaking the council, instead of resorting to stringent regulations to utilise this waste, preferred to adopt fresh and costly extensions. The water committee of that period would not, unfortunately, be without precedents equally unfortunate to justify them, but the actual result is that there is now an available supply of 6¼ millions per day, out of which not more than 3¼ may be said to be legitimately consumed, including the supplies to the local boards.

For the credit and in justice to the discernment of some of the members of the town council, it may be added that the policy of the water committee has been throughout very much criticised, and in particular we notice by Mr. Alderman Bairstow, who was recently mayor of Halifax. This gentleman appears to have shown a remarkable degree of prescience in his estimate of the value of some of the water committee's proceedings. With Mr. Bairstow's mayoralty is associated his introduction of a sliding scale in the sale of meter water to the trades, which, it is worthy of note, marked an extension of water revenue in the year 1882, which had not been attained previously, nor has been reached since.

It should be perfectly understood that "public rates" mean charges in excess of the ordinary statutory water rates allowed under the various Acts. It should also be pointed out that, while not unfrequently the area of an undertaking includes large alien supplies and townships outside its own limits, the rate in aid can only usually be levied within the limits of the borough. On this account it is to be feared that the incidence of these rates presses rather unfairly on the ratepayers.

Previous to taking leave of this part of the question, renewed attention should, however, be drawn to a subject dealt with previously elsewhere.* This is the influence which the purchase of water works, upon a high scale of valuation, has on the future welfare of the undertaking. It is more difficult to get a fair appreciation of this delicate issue than might be expected, for those who dispose of high-priced undertakings rarely see them in that light themselves, while those who purchase them and acquire their experience in that manner are very unwilling to acknowledge they have ever made a mistake. In a transaction such as the purchase of a water works, where the very foundation for a just consideration should be a sufficient supply of water, it seems, nevertheless, that this is occasionally absent. The measure of value, according to one side, is not to be sought in the extent and sufficiency of the plant, pumping engines, reservoirs, mains, meters, and services, but rather in the maximum rates which can be levied under statutory rights, independently of whether the plant can efficiently supply the locality with water or not.

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* "The Purchase of Gas and Water Works" (Crosby Lockwood & Co., London).

This is called buying up the parliamentary rights of an undertaking. These "balance-sheet" valuations have nothing to recommend them; but if there is one class of undertaking in which they are to be more avoided than another it must certainly be water works, in which the prospects of increased revenue are extremely slow.

Where any success is expected to attend the transaction, nothing but the fair and honest value, as a going concern, must be paid; should the plant be worn out, if the source from which the water is obtained be exhausted or polluted, these conditions should be understood to operate as deductions in the scale of commercial value, and allowed for accordingly.

Whatever the views of great authorities, we will not yield on the point that where a purchase has to be followed by a new scheme, in order to continue an adequate supply of pure water to the locality, which, had it fallen to the share of the pre-existent company, must have entailed a loss of statutory dividend, this should not be considered as a factor in the award.

This explains why, amongst recent water purchases, those of Exeter, Scarborough, Derby, Brighton, Leicester, and Wolverhampton must, in the long run, prove far more successful than the purchases of Wakefield, Cardiff, Heywood, Rochdale, Dewsbury, Cheltenham, Blackburn, and Stockton and Middlesbrough Waterworks.

The former undertakings have been from date of acquisition equal to the duty of supplying their districts, and are likely to continue so without any considerable outlays.

The Wakefield undertaking cost £210,000, and the corporation are now carrying out the Rishworth Moor scheme for an entire new supply upon an estimated outlay of £160,000, for a supply of 3 millions per diem, and a further £60,000 for an additional million.

The Cardiff undertaking cost £300,000, and a new supply is to be sought in the Taff Vawr Valley, at Brecon's Beacons. This extensive scheme, for a supply of 5 millions per diem, is estimated to cost £300,000. This includes a 24-inch gravitating main from Taff Vawr to Llanishen, the construction of compensation reservoirs on the line of route, and the storage reservoir at Llanishen just commenced (1884).

The Heywood Water Works were purchased on the basis of a sliding scale of annuities, culminating in 10 per cent. (1883), *i.e.*, £8,343 per annum. At twenty-five years' purchase, this would be £208,575. To maintain a sufficient supply and meet the statutory compensation to millowners of 4½ cubic feet per second (12 hours), an outlay of £65,000 has since had to be made.

The value of the Rochdale 10 per cent. annuities, paid to the late company, is put at £186,480, and, as already explained, the cost of the Cowm and Springmill extensions, now completed, has been £680,000.

In the case of the Dewsbury and Heckmondwike Water Works, the old works cost £149,894 and the new works £61,848. Dewsbury's interest in the undertaking is three-fourths, and the Heckmondwike Local Board's, one-fourth. The compensation is 2 million gallons daily; consequently these works are on a large scale.

The Cheltenham Works cost £229,161. The supply being entirely inadequate, the extensions, by which a supply of 750,000 gallons is expected to be obtained for an estimated outlay of £84,000, have been commenced.

The Blackburn Works, acquired in 1875 on the basis of 9½ per cent. annuities, equivalent to an outlay of £321,694, have been followed by the execution and completion of the Whitendale Valley scheme, at an outlay of £255,000.

The Stockton and Middlesbrough Water Works cost, in 1876, the enormous sum of £844,686; and the prospects of this undertaking were completely ruined at the outset by the award and expenses incurred through the purchase. It is satisfactory to find that they have since been managed so well that there is every prospect of a bright future. Mr. D. D. Wilson appears to have performed an almost impossible feat in rescuing this undertaking out of its difficulties, and, after six years of endless worry and responsibility, is greatly to be congratulated on the result. The manufacturing supply has assumed unexampled proportions, and the supply promises soon to exceed 60 millions pumped per week, to which the board are limited. To meet this it is proposed to construct a compensation reservoir in the Valley of the Balder, available for the supply of 32,455,500 gallons per week. This is the Hury Reservoir, the contracts for which have recently been let for £112,658. The term "compensation" is used, as the water will be obtained at the flood time and retained in the reservoir to compensate the river for the additional water pumped above the present 60 millions per week.

The construction of this reservoir with incidental works will cost £286,000.

This is a striking and very satisfactory solution of the difficulty attending the future supply of this great district. Those who honourably supported the parliamentary proceedings in favour of purchase, with a view to superseding the Tees supply, must acknowledge that, the moment a nominal reference as to compulsory and prospective rights was made the convenient vehicle for obtaining a further sum of £213,802 for an undertaking upon which Parliament had already set the value of 25 years' purchase, the supporters of high-priced water undertakings had unwittingly defeated the object of Parliament by rendering any further steps in favour of a purer supply quite impossible. This decision has not been without results; it has been the means of summarily disposing, at least, of the myth of "prospective rights."

That a great disposition exists still in favour of extravagant valuations of water works on various grounds, regardless of the consequences to the municipalities, is still too manifest, and that our most eminent authorities favour these, receives too frequent confirmation. As late as last Session (1883) a most eminent authority is reported, in the course of the Heywood Corporation Bill Inquiry, to have given it as his opinion that "the price paid by the corporation *would not have been excessive if they had had water with the works.*" A view of the case that can scarcely be accepted, because the interest on the outlay since made, viz., £65,000, coupled with 1 per cent. for the redemption of that sum, does not, in fact, even approximate with the acknowledged deficiency, viz., £5,196 per annum; while charging the high water rate of 7½—5½ per cent. The practice of paying 10 per cent. annuities in this instance, has made it necessary to raise the water rate to 10—7½ per cent., under the provisions of the Act then obtained. This was, in fact, the object of the corporation's application to Parliament.

There are to be met, fortunately, another class of undertakings in which the results achieved, the scale of capital engaged, and the water rates charged afford ground for more encouraging statements. In these also rates in aid are rarely found. These are chiefly the pumping works drawing their supplies from rivers, the new red sandstone, the oolitic limestone strata, and the chalk formation. These are the moderately hard waters as opposed to the soft waters.

Amongst many promising works of this kind must be included those of the Wallasey Local Board—new red sandstone supply. There is a surplus to the credit of the general rate here, and Mr. Hill has been very successful in checking waste.

The Leamington Corporation Water Works are very cheap works.

The supply was originally from the River Leam. These works remind us of the share Mr. Alderman S. T. Wackrill has had in introducing a really cheap and most efficient supply of water from the new red sandstone. The water rates are nominal—as low as 2 per cent.—the general district rate supporting a small share of the maintenance.

Lancaster Gravitation Works, supplying also Morecambe, deserve to be included amongst works of a very promising kind.

Perth Water Works (River Tay), Scarborough (oolite strata), Darlington (Tees), and Carlisle (Eden), the latter under the management of Mr. Hepworth, all these are affording satisfactory results.

Exeter, a recent purchase (1878)—the supply pumped from River Exe—is also answering the expectations of the corporation.

Warrington (Company) charging on the "net rateable value," a new red sandstone supply; St. Helen's (Knowsley and Kirkby schemes in progress); Bath (oolite strata); Southampton (except as to waste); Burnley (Cant Clough scheme in progress); York (River Ouse), Company's rates as low as 3 per cent.,—are all works under arrangements that reflect credit on the towns and companies.

A more than favourable notice is due to the gravitation works of Barrow-in-Furness. An abundant supply, moderate outlay, and cheap rates, with a contribution to the borough fund, all unite in this instance.

Paisley and Greenock gravitation supplies are no exception to the general rule that all the Scotch undertakings afford plentiful supplies and are usually cheap. The latter is remarkable for a very large meter and water-power supply.

Birkenhead, new red sandstone supply, has been admirably managed. The rate is 4½ per cent. uniformly; but it is a well-known fact that the corporation have been systematically reducing the rates for some years.

In reference to Derby, a recent purchase, there are good reasons for believing that, although what appeared a high price was paid in 1879, the progress of the undertaking has been of a character to partly justify it. The rates maintained are certainly very low; and some credit belongs to the late company in reference to this. What, however, we attach the most importance to in respect of this undertaking is, that we have seen a report emanating from high authority which decidedly expresses an opinion that these works are capable of double their actual supply, which, of course, greatly modifies our original view of this purchase.

Preston gravitation works (Langden and Hareden Brooks extensions) are works that will especially bear ample and favourable comparison with those of their own class.

Aberdeen (River Dee) presents a thoroughly good example, especially in the matter of redemption of debt; the supply abundant, and low rates.

Brighton (purchase 1872) has turned out exceedingly well. Supply from the chalk; rate 9*d.* in the £, and a surplus. The necessary extensions appear to have been made most judiciously. This is one of the most promising undertakings in the kingdom.

A similar remark applies to Leicester Corporation Water Works. The purchase has turned out very well, and the works are evidently worth the outlay made upon them.

A most interesting undertaking is that known as the Weardale and Shildon District (Company). It supplies the city of Durham, but the arrangement is of recent date. The dividends paid are from 3½ to 4 per cent. It is really a great mining supply, and the water works are quite modern. The water from the moorlands is collected in two reservoirs, the Waskerley and Tunstall, and the mileage of mains is 173 throughout a most extensive district. These works have cost £553,000, and were designed by Messrs. Thomas Hawksley & Son, MM.Inst.C.E.

The Wolverhampton Works have before this occasion been favourably noticed. New red sandstone supply, and much of their success is attributable to Mr. Lyons Wright.

The Kingston-upon-Hull Works, supply from borings in the chalk, have been noted for the relatively small amount of capital engaged in works capable of so large a supply as 6¼ millions per diem.

The water works at Belfast have much to recommend them, especially if compared with undertakings of similar magnitude.

Nottingham Water Works afford an instance of a really magnificent undertaking. Bunter beds, of the new red sandstone. Potential limits 7 millions a day, and minimum rates 3 per cent. The reference to this undertaking we have been favoured with by Mr. S. G. Johnson, town clerk of Nottingham, will be found extremely interesting.

The Newcastle and Gateshead Water Works (Company) afford indications that this is a well-managed undertaking on a truly great scale. The dividends vary from 7½ to 5½ per cent., and the water rates do not exceed 3 per cent. as a minimum.

The Edinburgh Water Works introduces the very largest class of works. Supply from Pentland Hills. Water rate, 8*d.* in the £.

The South Staffordshire Water Works (Company) may be considered one of the largest undertakings in England. Its distinctive feature is that it supplies a district chiefly composed of towns, and all the district outside Birmingham. The rates charged by this company do not strike one as high, when considering the enormous cost of supplying such an exceptional district. The dividends are rising to 5 per cent., and it is evidently a well-managed undertaking.

The Birmingham water supply is, as every one knows, one of the largest provincial supplies. The water rents of the undertaking, which, since the purchase in 1875, had risen from £90,722 6*s.* 11*d.* to £125,065 4*s.* 7*d.* in 1882, upon a normal increase of annual supplies, fell last year to £113,558—incurring thereby a trifling loss.

This deficiency, however, reflects credit upon the water committee, since it confirms amply the large scale of reduction which they had voluntarily incurred previously through a general reduction of the basis of assessment. On the 6th March, 1883, the council adopted the principle of rateable value, and they claim that the total reductions made from time to time since the works have come into their hands amount to £25,834. To this should be added the interest on the reserve fund, £2,000, making a total of £27,834.

A careful consideration of the statistics referring to Birmingham (page 62) most decidedly confirms the impression that the undertaking has been placed on an admirable footing in all respects, except redemption of debt.

It is with some pleasure that we draw attention to the Dublin Water Works, which in extent of supply approximate with some of the largest English undertakings.

The introduction of the Vartry water is due mainly to the initiative of the late Sir John Gray; and for that he received, in 1863, the well-merited honour of knighthood at the hands of the Earl of Carlisle, then Lord Lieutenant of Ireland.

The Vartry Water Works have proved a great success, for the supply continues abundant and excellent, and in point of cost they compare favourably with any similar undertaking in this country. It will be noticed that Mr. E. Dwyer Gray, M.P., now occupies the position of deputy-chairman to the water works committee.

A reference to the very exceptional lake scheme from which the city of Glasgow draws the largest supply of water distributed in any town will conveniently complete this summary. The entire body of water drawn at present from Loch Katrine for the daily supply of this city is 35,806,742 gallons. An application to extend the limit of the draught upon Loch Katrine and the adjoining lochs in the upper valleys of the Teith from 50 to 75 million gallons per diem, and for laying a fresh line of aqueducts, will probably be presented to Parliament next Session (1885). This extension, with the necessary works for enlarging the storage of the loch, will, it is stated by Mr. J. M. Gale, M.Inst.C.E., incur an outlay of one million sterling, which it is proposed to distribute over a number of years. The supply of Glasgow, which is on an unusually large scale, increases annually one million per diem; and it is on these grounds that it is calculated that the limits of the present supply are likely to be reached in the course of a few years. The original works were completed, 24 years ago, by Mr. J. F. Bateman, M.Inst.C.E.

There are many features about the Glasgow water supply which have contributed to make it a very great success. Out of all the large schemes it is the only one whose potential limits of supply, for so much as the loch is concerned, are practically unlimited. The manufacturing supply, which is relatively upon a cheap scale, does not press heavily on the ratepayers nor on the house supply, and it is most significant of all, that proper attention is being paid to the redemption of debt; and we think it will be generally agreed that Mr. Robert Wilson presents annually an exceptionally sound balance-sheet for our consideration.

It has been suggested how the prospects of economic supplies can be defeated by undue and unrestricted development being given to extension schemes; but there is another feature which is yet of greater import, namely, the neglect to bring into early operation a systematic redemption of all the capital previously sunk. There is in general far too great a disposition to ignore the great responsibility that attaches to a sufficient and practical system of "amortissement." It cannot be too repeatedly insisted upon that, unless public corporations redeem debt, they have forfeited one of the principal grounds in favour of their supplanting public companies. The latter are able to divide only 6 per cent. .The local bodies will, by reason of the larger credit and security afforded them by their own borough rates, be able to invest money at 3½ to 4 per cent. The greater portion of this margin should certainly be applied to the purpose of redemption, and any failure to do this seriously threatens the prospects of the undertaking in the future.

It is becoming too much the fashion to ignore the pressing claim for repayment of debt. There is too great a tendency to postpone it, and far too great a facility to reduce its incidence by getting ridiculously long terms for repayment inserted into Acts of Parliament.

Taking a retrospective view of what has already been effected in this respect, it strikes insufficient and unsatisfactory. There is at least the experience of thirty years to look back upon, and since then, if not always in connection with water supply, it must be conceded that some very great local debts have been in various ways accumulated; the schemes for which the money was raised in too many instances are exhausted, but yet nothing appreciable has really been written off. Moreover, we find also that some of the provisions for this purpose are susceptible of being easily defeated, and are, in fact, too often neglected in the case of long terms. No scheme that does not definitely conform with the provisions necessary for securing a full redemption of the capital engaged in it within a sufficiently limited period is worthy of acceptance by Parliament, whether for a water extension, a gas purchase, drainage or sewerage projects. The advantage of adopting the practice is sufficiently evident, since it must usefully control immediately the limits of the extension itself.

The doctrine that we should spend the capital unrestrictedly, in order to benefit future generations, and leave posterity the legacy of repayment, is in the highest degree communistic, and not worthy of an enlightened and wealthy community. They are, indeed, likely to repudiate them, for, when the public local debts become too unwieldy, the economists of the day may find it convenient to advocate the policy of not contributing to that which has ceased to benefit.

There is no lighter tax than that which should be imposed by a fair and reasonable "amortissement' of debt, yet, small as it appears, it is resisted, postponed, or whittled away into the "reductio ad absurdum." The present generations have inherited no local burthens, and this points to the conclusion that our legacies in these respects, when they have ceased to be within reasonable limits, through our own neglect, will not be acceptable.

It would be very undesirable to associate any locality in this somewhat sweeping view of the subject: there are, fortunately, a large number of boroughs in the accompanying returns to which these strictures cannot possibly apply.

The usual terms inserted in Acts of Parliament are 40 to 60 years, but these considerations are rather suggested by finding that some towns are endeavouring to extend these periods to 100 years, and in some cases even to 200 years, and that they are supported in this course by the opinion of eminent engineers.

Now, the facts of the case are very simple, and the average annual instalment of *principal and interest* necessary to pay a loan off in 30 years, at 3½ per cent., is £5 8*s*. 9*d*. per cent.; in 40 years, same interest, it is £4 13*s*. 7¾*d*. per cent.; in 45 years, £4 8*s*. 10¾*d*. per cent.: the longest term which should ever be sanctioned, in our opinion.* For 100 years, at 3½ per cent., it actually works out at £3 12*s*. 0¾*d*. per cent.! Eminent authorities have argued that this sinking-fund principle presses very hardly upon the present generation by compelling them to provide a free water supply to the population of the future, and those who oppose the principle that these undertakings should be in the hands of corporations, add: "If the works had remained in the hands of the companies there would have been no sinking fund created, and the debt would have remained a debt for ever," which in works of water supply appears to them proper.

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* "Loans Repayment and Annuity Tables," compiled by Mr. Isaac Binns, borough accountant, Batley, furnish useful and valuable data, in a very handy form, on these points.

There does not at present appear the faintest indication that we are providing future generations with a free water supply. Unless the decennial returns of population are entirely delusive, each generation will have to contribute its own section to the present works supplying towns with water. Much depends obviously on the course the towns choose to take in these matters themselves; if they accumulate debts to such an extent as to bear too heavily on manufacture, they will drive trades infallibly away to new and unrated districts, where new communities will arise and prosper, leaving the older towns to languish under the influence of debt and the decreasing rateable value, which must ever be associated with loss of trade.

The rapid growth and progress of such a town as Barrow-in-Furness, with its well-balanced supplies of gas and water, points to an illustration, besides affording a timely warning of what the future may have in store. A proper attention to this most important duty will go far towards moderating the incentive to adopt large and speculative water schemes.

That a due provision for the extension of water works must be made, and that in advance of actual requirements, is always perfectly understood; but nothing will be lost by these questions being treated under the aspects of moderate schemes, diminished water rates, the redemption of capital, our own necessities, and a stringent reduction of waste.

The difficult question how to meet the growing requirements of the two rival cities of Manchester and Liverpool found a definite settlement in the promotion of two of the largest schemes of water supply yet sanctioned by the Legislature—by the Thirlmere Lake scheme in the case of Manchester, and the Vyrnwy project for Liverpool. The latter was sanctioned in 1880. The River Vyrnwy originates out of a watershed adjoining Lake Bala, in North Wales, and finds its way into the Severn before the latter reaches Shrewsbury. It is proposed to impound the upper waters of the River Vyrnwy by throwing up an embankment, thus forming an artificial lake capable of affording a supply of 40 gallons per head of population to Liverpool, and about 10 millions per diem as compensation to the Severn interests. The area of the watershed which drains into Lake Vyrnwy is 17,583 acres. The freehold of the greater portion has been acquired; and further, when this supply is exhausted, there are two subsidiary schemes in reserve, through which the Marchnant drainage area and the Cowny drainage area will reinforce the present source, making the entire watershed 22,000 acres. The water which the Corporation are still to pour into the bed of the Vyrnwy will be discharged through culverts in the lower portion of the embankment. Mr. Deacon's latest reports explain how the embankment, now being constructed across the valley of the Vyrnwy, will impound the upper waters of the river, and will form a lake having an area of 1,115 acres at an elevation of 825 feet above the sea level. The length of the embankment from rock to rock will be about 1,255 feet; its height above the original river bed to the ordinary top water level about 84 feet, and to the parapet of the roadway to be carried on arches along the embankment about 98 feet. It is being formed of rubble masonry, set in Portland cement mortar, founded upon sound rock of the Caradoc beds in the Lower Silurian formation. This rock extends across the valley and up both sides thereof. The greatest depth of its surface below the river bed, within the area to be built upon, is 60 feet; so that the total height of the masonry above the lowest part of its rock foundation will be about 158 feet. The supply will be delivered by natural gravitation through an aqueduct of 67½ miles in length to the present Prescot reservoirs of the corporation. It consists of three tunnels, through which the whole expected yield of the works may be passed without pipes, and of three lines of parallel cast-iron pipes, only one of which, with a few short exceptions, will be constructed at present. The discharging power of each line of pipes will not be less than 13 million gallons per day. The cost of the first section of the works is put at £1,250,000; under the Act of 1880 the corporation have power to raise £3,250,000.

Some considerable progress has been made with these works since December 1882, when the total outlay then amounted to £500,342. At a much later date, viz., to 31st March, 1884, the total outlay is represented to have reached the sum of £943,485 16*s.* 7*d.* This comprises £204,750 1*s.* 3*d.* on the Llanwddyn embankment works, £64,004 17*s.* on the quarry works, £446,779 16*s.* 6*d.* on the aqueduct, chiefly made up of cast-iron pipes, pipe laying, and the works incidental to Hirnant tunnel driving, concreting, and brickwork not yet completed. Then the land and easements for the Vyrnwy watershed reservoir and aqueduct have cost £227,951 1*s.* 10*d.*, making up the total, as above, £943,485 16*s.* 7*d.*

The city of Manchester is now supplied by the Longdendale Works. These works are computed to be equal to a supply of 25,000,000 gallons per day. Commenced in 1847, they have been lately completed, and their cost, including the purchase of the old water-works undertaking, is £3,096,877. The water actually supplied to Manchester is between 18 and 19 million gallons per day, so that, with an area computed to have a population of at least 900,000 inhabitants, the limit of the present supply is not altogether remote. The Thirlmere scheme, prepared by Mr. Bateman and accepted by the

House of Commons in 1879, is designed to meet the further requirements of the city. It is a scheme of the most admirable conception, and is intended to draw from the Thirlmere Lake, in Cumberland, a supply the limit of which is 50 million gallons per day. This is to be effected by a composite aqueduct of 104 miles in length, consisting of 14 miles of tunnels, of 39 miles of a "cut and cover" channel in the ground; and the remaining length of cast-iron pipes and bridges.

Manchester receives a prior right to 25 gallons of water per head of the population as it increases, from all its sources of supply; but, subject to this prior use, all corporations, urban and rural sanitary authorities, in the neighbourhood of the aqueduct may require a supply not exceeding 25 gallons per head per day of the population then existing. The towns on the route are Kendal, Lancaster, Preston, Wigan, Bolton, Leigh, Hindley, and others. Such are the chief features of certainly the greatest water scheme that has ever been devised. The cost of the old company's works, £533,561 8*s.* 2*d.*; the cost of the new works, Longdendale, £2,563,315 12*s.* 6*d.*; and the amount already expended to 31st December, 1883, in carrying out the preliminaries of the Thirlmere scheme, £300,337 18*s.* 9*d.*, represent a total of £3,397,214 19*s.* 5*d.*, which affords some idea of the magnitude of the undertaking committed to the care of Mr. Berrey.

A few years ago the late Sir William Fergusson, addressing the British Medical Association at King's College on the subject of an efficient water supply, drew attention to the so-called value of "pure water" to health in the following caustic sentences, which it is not out of place to reproduce here, since they especially bear on points still as stoutly contested as then:—

> "He was tempted to say that possibly a fault lay on the side of the profession that they expected too much for themselves, and led the public to expect too much, on the score of what might be considered quality and purity. Moreover, they differed largely among themselves in regard to these points. As educated chemists, in reference to animal life and nourishment, they talked and wrote learnedly about elements. The purest water might be defined as that which held least saline, animal, vegetable, or earthy material. The physician thought so highly of this feature that in a fluid dose of medicine he ordered the bulk of the potion of distilled water; yet in that water he probably congregated an amount of saline, animal, or vegetable material which no natural spring or unpolluted stream could be compared with. He sent his patients hundreds or thousands of miles to partake of waters where the converse of purity was generally the chief feature of the fluid. But this, it would be said, was in accordance with the science of combinations and a just appreciation of the efficacy of salines, especially those compounded by nature in the bowels of the earth. He did not object to those impregnated waters as curative agents in certain forms of disease; he did not quarrel with the physician when he ordered distilled water as the purest fluid for his compound—but in either instance that physician could not fancy that his patient was about to drink pure water—it might be admitted that he had no such idea, yet the same man insisted stoutly on the necessity for unexceptionably pure water for ordinary drinks. This 'Adam's wine' might be filtered, boiled, distilled, yet certain so-called impurities would hold

their place or speedily reappear. Vegetable matter, animal matter, earthy or saline matter, were the bugbear of those who wanted pure water for man. He then supposed a pint of absolutely pure water given to the meal of the 'pet of the day,' the 'working man,' a model teetotaller who had taken a vow against alcohol and all fermented liquors, and asked his hearers to trace the frugal meal—say water and bread—as far as their physiological imagination could, down the intestinal canal and into the blood, and fancy from their knowledge the affluents thereon. Could 'pure water' be recognised beyond the teeth in this downward course? Mucus, saliva, tonsillary secretions, mucus again, and gastric juice, and pancreatic, and biliary, all joined the ingredients of the simple meal. But suppose that the working man indulged in the luxury of a bit of beef or mutton, with some of the usual adjuncts—potatoes, turnips, greens, cabbages, peas or beans—what was the fate of the pint of pure water which was deemed the grand feature of this excellent fare? Here vegetable and animal matter were joined with pure water to an extent a thousand times beyond the imagination of the pure water theorist, and the bread and water system was simplicity itself compared with this. He supposed other cases in different classes of society and he asked, as to the grouse and venison eaters, supposing them to be 'pure water' men, what became of the water as soon as it was swallowed? What about the pleasing adjuncts to these delicious articles of food, and what (to those who were always referring to salts in waters) about the common salt which was consumed in quantities so palpably larger than those pointed out by the chemist in so-called saline waters? What could medical men say of the refinement in diet of the savage who preferred animal food in a putrid state to that recently killed, and uses such surface water, or any other kind, as chance might put in his way? He fancied that the pure chemist was often taken for a medical man, and he feared that many of the profession affected too much the airs of the pure chemist, too frequently jumbled up chemistry and physiology, so that the characters of each seem to suffer. He asked if they were not in reality too fastidious about 'pure water.'"

A careful study of the mortality returns, in the towns deriving their water supplies from different sources, shows conclusively that, while a combined sewerage and water scheme effects at the outset an appreciable amelioration in the sanitary returns of a district, the particular character of the water itself, whether from rivers, red-sandstone wells, drainage areas, or chalk sinkings, does not affect in any degree that result. The hygienic view is invariably put forward to support schemes which aim at obtaining supplies of magnitude from distant watersheds in preference to extending and improving original sources; but it may be depended upon that the real and less apparent object is to obtain soft waters suited to the manufacturing interests.

That lead-poisoning, not necessarily fatal, is known to be incidental to the supply of soft waters through lead service pipes is well understood. Recently a large number of cases of lead-poisoning in the Yorkshire districts have been brought under notice. The chemically pure waters act on lead service pipes; but chemists do not seem quite agreed to what the action is precisely due, whether to a free acid acting chemically upon the lead, or to the presence of free oxygen in the water.

In a recent lawsuit, *Milnes* v. *Corporation of Huddersfield*, it was reported that the water from the Blackmoor Foot Reservoir dissolved 1-18th of a grain of lead per gallon, after being allowed to stand in an ½-inch lead pipe for twelve hours. The most reliable explanation offered at the time was that the water from the hilly districts near Huddersfield was very soft, and that soft water acted upon lead by reason of the air it held in solution, the oxygen in the water being intensified threefold. The action of this air differed according to the softness of the water. In the lower strata, where the soft water was obtained, there was an absence of salts and lime; the water, therefore, acted upon the lead pipes more than did hard water, such as was obtained in the midland counties. These waters are commonly reputed to protect themselves in the lead pipes by forming a coating which suggests that the danger only exists when the service is first laid on; but, as a distinguished chemist then stated, recent experience tends to shake that view. The reason lead service pipes are used is that iron colours soft water.

There is nothing more unsatisfactory than the consideration of the conflicting statements that have for many years been repeatedly made before parliamentary committees concerning the particular fitness of certain river supplies for purposes of water supply.

The prospects of pumping-works should not be entirely sacrificed to sentimental considerations. On the other hand, there has always been a very proper feeling against receiving the view that sewage admixture is entirely innocuous within specified limits, since the acceptance of such views might have rendered more difficult the degree of purification aimed at by the Rivers Pollution Prevention Act, 1876. Whatever the degree of pollution of rivers, whether remote or great, there could be no two opinions as to it being progressive, consequent on increasing discharges.

There cannot be, however, any longer an excuse for diverting town sewage or chemical refuse into rivers and streams devoted to the purposes of water supply, between the two available processes of irrigation and precipitation, which are capable of producing, where properly carried out, an effluent water of a perfectly innocuous character. All that the Legislature has to do is to rigidly insist that Acts sanctioned for these purposes should be scrupulously observed by all concerned. With that reservation, we believe our riverside populations may accept in perfect security all those views that have been urged by practical and experienced engineers in favour of the natural oxidation of contaminatory matters in running waters, at the end of a sufficient flow. That this is the natural law through which nature cleanses its own channels and reconstitutes all matter for future beneficent purposes, there can be no doubt whatever. But nothing in these remarks must be understood to absolve local authorities from the responsible duties which these Acts have cast upon them, and to which they should turn their attention and resources without delay, where they have not yet begun to do so.

We may therefore confidently look for a great improvement in river supplies.

The proper basis upon which to charge water rates has recently been argued at considerable length before the highest judicial authorities, in the separate instances of *The Warrington Water Works Company* v. *Longshaw* and *The Grand Junction Water Works Company* v. *Dobbs*.

It may be of advantage to follow these suits briefly through their different stages.

Warrington Water Works Company v. *Longshaw.*—(1) In the Wigan County Court the decision of the judge, Mr. W. W. Foulkes, was adverse to the water company, who endeavoured to establish their right to a charge based upon "the annual rack-rent, or value, of the premises," under the provisions of the Warrington Water Works Act, 1855. The argument relied upon was that "rent" was synonymous with "annual value," and that the Parochial Assessment Amendment Act (1862), 25 and 26 Vict., had confirmed that "gross estimated rental" was to be the "rent" at which any hereditament might reasonably be expected to let from year to year, free from all usual tenant's rates, taxes, &c., and this was to form the basis of the charge for water and the like. The "net annual value," it was contended, was the same thing as "annual value," as opposed to "rateable value." Some reliance was placed upon the fact that at Sheffield "rent" had been interpreted to mean "annual value."

For the defendant counsel argued that "annual value" meant the "rateable value" at which a person was assessed to the poor rate, or, if not so assessed, according to the net annual value of the premises. Both sides claimed, curiously enough, that "net annual value" meant "annual value."

The decision appears to be founded upon some words in the local Act connecting the basis of charge with the assessment to the poor rate, and adopts the view that the right interpretation was on the net annual value of the poor rate.

(2) Leave of appeal having been given, the next stage of this disputed assessment was heard in the Queen's Bench Division before Justices Field and Bowen. The plaintiffs, the Warrington Water Works Company, represented by Mr. Webster, Q.C., argued that the construction to be put upon the Warrington Water Works Act, 1855, their other special Acts of Parliament, and of the several public general Acts incorporated therewith, was that they were authorised to calculate their charges on the basis of the "gross estimated rental" in the assessment of the poor rate, or, if not upon such sum, upon the annual rack-rent, or value, of the premises. Mr. Webster's contention being that "rack-rental" meant "annual value," as opposed to "rateable

value," exclusively applying to poor-rate purposes. The reason the words "shall be payable according to the annual value at which the premises are from time to time assessed to the poor rate, if the same be so assessed, or, if not, according to the net annual value," appear in the company's act, is because it was known perfectly well that in an assessment to the poor rate the annual value was stated, and in addition to the annual value there was stated also the rateable value, and they did not refer only to the rateable value, but to the other matter which could be ascertained from the poor rate, viz., the gross estimated value. "Rent" meant "annual value."

Sir. Hardinge Giffard, for the defendant, considered that the construction of the word "rent" was the whole question before the Court.

The decision of Justice Field was adverse to the Warrington Water Company and was founded upon this, that by their Act of 1855, section 63, the plaintiffs being obliged to furnish a supply upon the annual rack-rent or value of the premises supplied, such water rate, by section 65, was payable according to the annual value at which the premises are from time to time assessed to the poor rate, if the same be so assessed, or, if not, according to the net annual value of the premises.

The words "annual value" thus used are the same words that are used in the General Parochial Act and in the 6th and 7th William IV., 1836, by which, as is well known, the assessment of the occupier to the poor rate is governed, and by which no poor rate is of force which is not made upon an estimate of the net annual value. In the Act the words "net annual value" are followed by an express definition of the sense in which they are used; that is to say, it is to be the rent at which the hereditaments may reasonably be expected to be let free of all usual tenant's rates and taxes and tithe rent-charge, deducting therefrom the probable average annual cost of the repairs, insurance, and other expenses (if any) necessary to maintain them in a state to command such rent. This latter is the "rateable value" on which the owner or occupier is assessed to the poor rate.

This was not appealed against.

Dobbs v. *Grand Junction Water Works Company.*—(1) In the Marylebone Police Court, before Mr. Cooke, Mr. Archibald Edward Dobbs, barrister-at-law, contended that he was only liable to be charged on the poor rate valuation of £118 instead of the gross estimated rental £140 for his own house in Westbourne Terrace, there being no actual rent to determine the charge. It is worth noticing that this issue was not directed against the pre-existent charge, namely, £5, but against an attempt to raise it to £9 on the grounds that it had been underrated previously. The Grand Junction Act, 1852, which prescribes the rates to be charged at 4 per cent. within an annual value of £200, and 3 per cent. when the value is in excess, does not, it appears, repeal an Act of 7 Geo. IV., section 27, which defines that the rate should be payable on the "rent" if it could be ascertained, and if not, the "annual value" is to be considered the amount to which it was rated to the poor rate. The company held that the word "rent" must be used as synonymous with "annual value," and that the Act of 1852 virtually repealed section 27 of Act 7 Geo. IV., cap. 140, in terms and in fact by using the words "annual value" instead of "rent," and that such annual value could be, and was, ascertained even when the landlord was in occupation.

Mr. Cooke decided in favour of the Grand Junction Water Works Company. He accepted their view concerning the repeal of the old Act, and defines the meaning of annual value of the premises in the terms of the Metropolis Valuation Act to be the annual rent a tenant might reasonably be expected—taking one year with another—to pay for a hereditament, if the tenant undertook to pay all usual tenant's rates and taxes, and the landlord undertook to pay the costs of repairs and insurance and the other expenses (if any) necessary to maintain the hereditament in a state to command that rent; and this seemed to him to be what was called the *gross annual value* in the Metropolis Valuation Act (1869), 32 and 33 Vict., cap. 67.

The fact that the tenant undertook to pay the landlord's taxes as well as his own could not be taken into consideration as between the company and the tenant, as such undertaking did not reduce the annual value of the premises to a tenant.

The 45th section of the Metropolis Valuation Act, 1869, 32 & 33 Vict., cap. 67, provided that the valuation list should be conclusive amongst other things, for every rate, assessment, and contribution levied, made, and enforced in the metropolis on the basis of value. He concluded that it must mean under the head of gross value, as opposed to rateable value in this instance.

(2) Before Justices Field and Bowen, in the Queen's Bench Division, the appellant's case, Mr. Dobbs, was stated by Mr. Webster, Q.C.; the argument relied upon being that as lessee for a term of which seventy years were unexpired, at a ground rent of £15, the rent was not ascertainable, and the water rate must be determined by the "annual value" upon which the assessment to the poor rate was computed, as directed by 7 Geo. IV., cap. 140, section 27, that as the appellant was under covenant to pay the landlord's charges and liabilities, these ought to be deducted, together with tenant's charges and liabilities, from the annual value, in order to determine the rateable value which should form the basis of the rate. The gross value, £140, counsel argued, included the cost of repairs and insurance and

other expenses necessary to maintain the premises in a state to command the rent. It was also relied upon that the Parochial Act (1836), 6 & 7 Wm. IV., cap. 96, was merely declaratory of the law previously expounded, that the poor rate was to be founded upon net annual value. At the time the Company's first Act was passed, the expression gross estimated rental was unknown.

For the respondents, the Grand Junction Waterworks Company, Mr. Russell, Q.C., submitted that the 27th section of the 7 Geo. IV. so definitely stated that rent was the basis of the charge where rent was ascertainable, that Parliament could never have contemplated two standards of rating, because they adopted "annual value" as an alternative when there was no rent paid. He puts the case by way of illustration, whether, if there were two houses precisely similar, forming part of the same row, owned by the same man—one in which he lived himself, the other let to a tenant—Parliament could have intended that he should be rated on net annual value and his tenant on gross annual value.

The two branches of the 27th clause were intended to provide a standard for the payment of water rates approximated as closely as possible to one another, and the object of both was to ascertain, where rent was paid, an assessment upon the rent, and where rent was not paid, by reference to what would be represented by payment of rent, viz., the gross estimated annual value. The assessment in the rate-book had nothing whatever to do with the rent. But this Act, the argument states, was repealed by that of 1852, and "annual value," definitely substituted for both the things mentioned in the statute, for which it was an equivalent, with merely an alteration of rates per cent. The covenant to pay landlord's charges and liabilities enhances the annual value, rather than diminishes it; and that annual value is the "annual value" to the person inhabiting the house, viz., the rack-rent.

Justice Field's decision was in favour of the appellant, Mr. Dobbs—holding that the original Act Geo. IV. was not repealed, and that if "rent" was the proper mode to determine the assessment when rent was paid, so when no rent was paid the assessment, it follows, must be according to the poor rate, and this could only mean on the basis of the net annual value, which meant rateable value; and he concludes, "We think that the Legislature intended to apply to the charge for the supply of so universally necessary an article as water by a privileged body an already ascertained standard easily to be referred to, and upon which the company and the consumers could alike act, and that this standard is to be found either in a *bonâ-fide* contract for rent (reduced to its true elements), where this existed, or in the 'net rateable value,' which is the actual basis of charge-ability, rather than in gross estimated rental, which is only a step in the calculation."

(3) In the Court of Appeal, before Lord Coleridge and Lords Justices Baggallay and Lindley, the next stage of this case was reached. The arguments having been heard, the Court of Appeal delivered judgment in favour of the appellants, the Grand Junction Water Works Company.

The Lord Chief Justice relied on this, that the Act 7 Geo. IV. was not repealed. Founding his view on the words, "And every such rate shall be payable according to the actual amount of the rent where the same can be ascertained; and where the same cannot be ascertained according to the actual amount or annual value upon which the assessment to the poor rate is computed in the parish or district where the house is situated"; he defines rent as meaning the rent payable to the landlord by the tenant for the occupation of the dwelling-house, ordinarily speaking, a rack-rent, and which, according to the primary intention of the section must mean the rack-rent to be paid by the tenant to the landlord. But where it cannot be ascertained "according to the actual amount or annual value upon which the assessment to the poor rate is computed." These words mean the full amount at which the house would have been rated, but not subject to the amount which was afterwards to be taken off for those various heads of allowance with which we are all familiar, which were to be made by the overseers before the actual assessment is computed.

They mean that the value of the occupation is, first of all, roughly taken, and then the value of it to the particular individual is computed according to well-known principles, the result being the amount of the assessment on which the poor rate is actually levied. It is not "the assessment to be levied," but "the assessment to be computed."

Lord Coleridge thinks, therefore, according to the true construction of this section of 7 Geo. IV., which for the reasons given appears to him still an operative section, the rate the Grand Junction Water Works Company are entitled to levy is on the actual amount of the rent,—that is, the full amount the tenant pays, where this can be ascertained; and where it cannot be ascertained, the full amount of the property in the hands of the owner before any deductions are made therefrom. Annual value in the second Act means the same thing as "annual value" or "actual amount" in the first Act.

Lord Justice Baggallay added that the annual value is not the annual value at which the house is assessed to the poor rate, but the annual value on which the assessment to the poor rate is computed. Then, when you have computed the assessment on the annual value, you have a right to the annual value which was to be the subject of rating; and this particular annual value seems to have been well known as the net annual value as distinguished from gross annual value.

Lord Justice Lindley concurred,—pointing out that we should look to the state of the law at the time the Act of Parliament was passed. After studying with care the case of *The King* v. *Adams*, which shows the principles upon which property was assessed to the poor rate, it strikes as almost a *reductio ad absurdum* to say that the price of water is to vary with, or to depend upon, the rateable value of premises. When you once understand the old law that rateable value was or might be a mere proportion, and that it was immaterial what this proportion was as long as the proportion was observed first to last, it strikes as ridiculous to suppose that the Act of Parliament should have placed in the hands of the overseers the power of fixing the rate which occupiers should pay for water.

(4) The final stage of this contested case was reached in the House of Lords, on appeal before the Lord Chancellor and Lords Blackburn, Bramwell, Watson, and Fitzgerald.

After hearing the arguments, supported by Mr. H. Davey, Q.C., for the appellant, and the Solicitor-General for the respondents, the final judgment of the Court of Appeal was delivered by Lord Bramwell. This decision founds the meaning of rent upon that in the Parochial Assessment Act (1836), 6 & 7 Wm. IV., cap. 96:—"The rent at which the hereditaments would let, free of all usual tenant's rates and taxes, and deducting therefrom the probable average annual cost of repairs, insurance, and other expenses, if any, necessary to maintain them in a state to command such rent." That is their value. This may indifferently be applied to either the old or later Act, without undertaking to say that it had been repealed or not. Value means net value—net value means value.

The Lord Chancellor agreed with Lord Coleridge that the Company's Act did not refer to the assessment itself, but to the value upon which the assessment was computed. But the value upon which the assessment was computed was in principle and properly the net value and not the gross value, and it is expressly so declared to be for the purposes of the poor rate by the later Act, 6 & 7 Wm. IV.

Lord Blackburn added: "The real point on which the whole thing ultimately turns being whether the words 'annual value' as cited in the Act *primâ facie* means the real annual value expressed and explained in the Parochial Assessment Act; that is to say, the value after deducting the necessary burdens upon it, or not." He thought they did.

Lords Watson and Fitzgerald concurring, the order of the Queen's Bench Division was restored.

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LONDON WATER SUPPLY.

> "In the larger rivers of England the volume of water is so great as to render them adequate to supply any quantity likely to be required for many years to come by the whole population seated on their banks. From 300 to 360 million gallons per day may be taken as the lowest summer discharge of each of the three principal rivers in England, the Thames, the Severn, and the Trent, and there are several others which nearly approach this quantity."
>
> *Treatise on Water Works for Cities and Towns.*—SAMUEL HUGHES.

In order to fully realise the importance of the London Water Supply and the full extent of it, it is necessary to place before the reader a definite view of what London now properly represents in point of increased area and population. One of the latest returns of the water companies shows that they were affording a supply to 667,568 houses in the month of March of this year (1884). When the last census was taken (1881) the number supplied amounted to 603,689. There has been a very decided increase in the number of houses supplied since 1878 associated with considerable activity in the building operations which are keeping pace with the permanent annual increase in population. The total number of *inhabited* houses within the area of the Metropolitan and City of London Police Districts, amounted in 1881 to 645,695, so that the companies' return disposed of nearly 84 per cent. of the whole number of houses; and this proportion is still being maintained. This area agrees with what is described the "Greater London" in the returns of the Registrar-General; and the annual increase of the population within it may be reckoned at 2·07 per cent., which corresponds with an addition of 100,000 inhabitants every year. The increase in the outer ring is of course at a higher rate than in the inner ring, "London." In the latter, it is 1·61 per cent., upwards of 60,000 per annum. In the outer ring the rate of progression is 4·17 per cent., upwards of 40,000. By the last census the population of Greater London was 4,766,661 (1881). The corrected enumeration of the Registrar-General puts it at 4,889,993 for the middle of 1882.

For 1883 it is put down at 4,990,952, and for the middle of the current year, 1884, it is estimated at 5,093,995. At this rate of progression the population will not double before a term of 35 years has been reached, viz., the year 1919.

In a like manner the houses supplied by the water companies have increased from 603,689 in 1881 to 626,017 (1882), 647,315 (1883), and to 667,568 (March 1884). The latter indicate, upon the data usually adopted by the companies for estimating the population of their districts, a supply to a population of 4,925,060 inhabitants, or 96 per cent. of the entire population of the Metropolitan Police and City of London Police Districts.*

The supply of water furnished by the companies was, last year (1883), 144,592,772 gallons per diem, or nearly 30 gallons per head of population. The proportion used in manufacture has never been accurately determined. The Registrar-General has certainly adopted, it may be noticed, a basis, suggested 18 years ago, that 82 per cent. of the whole supply was used for domestic use; and some tables are calculated and published to that effect, but the companies do not, probably, accept the responsibility of these statements. The experience of other large cities seems to indicate that a larger proportion is credited to the domestic supply than can be reasonably applied to ordinary purposes; while the quantity attributed to trade purposes, fires, public baths, watering streets, and flushing sewers is probably very much underrated. The particulars also furnished in parliamentary returns appear to be wanting in agreement, and are probably mere guesswork. The only dissection of trade and domestic supply presented in these returns are those of the New River, Southwark and Vauxhall, Lambeth and Chelsea, which are furnished under the responsibility of the companies themselves.

If the supply is what it is represented in these annual returns, there can be no question that it is ample for all purposes. The sources from which the supply is drawn are various. The New River obtain theirs from the Chadwell springs, a number of chalk wells, and the River Lea; the East London, from the River Lea, with a contingent supply from the Thames at Sunbury. The Kent obtain theirs exclusively from chalk wells. Generally speaking, 72,881,894 gallons are drawn from the New River, River Lea, and chalk wells; the balance, 71,710,878 gallons, is drawn from the Thames above

* *Metropolitan and City of London Police Districts* (1881).

	1. Inhabited Houses.	2. Population (1881).	3. Rateable Value.
Parishes and Districts ..	479,679	3,765,831	£24,480,722
City of London	6,507*	50,652	3,489,830
"London"	486,186	3,816.483	£27,970,552
Extra-Metropolitan Additional Parishes ..	159,509	950,178	5,452,407
"Greater London"	645,695	4,766,661	£33,422,959
Water Companies' Returns ..	603,689	4,593,105	—

* N.B.—The uninhabited houses in the City were found of course to be exceptionally high:—Inhabited, 6,507; uninhabited, 4,755; building, 98; furnishing a grand total = 11,360.

Hampton. Sir J. W. Bazalgette, C.B., states, in his presidential address to the Institution of Civil Engineers, that the companies employ 143 pumping engines, of 16,490 nominal horse-power, the head of pressure on the districts supplied varying from 20 to 380 feet. They have ninety-three filter beds, covering 95 acres; fifty-four subsiding reservoirs, covering 465 acres, and capable of containing 1,290 millions of gallons; also forty-nine service reservoirs, the capacity of which is 154½ millions of gallons, and 4,000 miles of mains laid, of which 3,000 are within the metropolis.

London Water Supply.—Year ending December 1882 *and March* 1883.

	Population.	Houses Supplied.	Name of Company.		Working Expenses.	Profit on Trading.	Interest.	Dividends.	Pref. and Deb. Capital.	Share Capital.
	Rateable Value.		Capital Expended.	Water Supplied Daily.	Water Rental.		Total Interest and Dividends.		Total Capital Raised.	
			£ s. d.	Galls.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£	£
	1,069,837	136,649	2,146,126 7 6	34,875,151	91,919 14 1	142,414 4 3	18,495 14 6	117,208 18 9	394,440	1,695,260
	Rateable Value, £4,535,910		1. EAST LONDON.		Water Rental, £234,333 18 4		Interest and Dividends, £135,704 13 3		Total Capital Raised, £2,089,700	
	1,025,000	137,867	3,256,078 16 4	27,620,667	160,312 11 7	276,306 15 4	46,322 15 3	235,863 3 9	1,208,146	2,019,958
	Rateable Value, £10,684,208		2. NEW RIVER.		Water Rental, £436,619 6 11		Interest and Dividends, £282,185 19 0		Total Capital Raised, £3,228,104	
	754,013	98,956	1,801,612 15 8	20,021,967	70,292 15 4	119,681 11 4	43,342 5 3	69,488 0 0	921,200	900,800
	Rateable Value, £3,713,023		3. SOUTHW'K & VAUXHALL		Water Rental, £189,974 6 8		Interest and Dividends, £112,830 0 0		Total Capital Raised, £1,822,000	
	538,524	73,644	1,505,754 0 5	15,750,083	71,179 3 10	103,840 9 9	8,025 6 0	96,111 10 10	173,955	1,292,317½
	Rateable Value, £2,544,075		4. LAMBETH.		Water Rental, £175,019 13 7		Interest and Dividends, £104,136 16 10		Total Capital Raised, £1,466,272½	
	479,235	61,961	1,148,122 13 6	11,541,684	60,420 9 3	119,678 3 8	Nil	114,216 3 4	Nil	1,154,160
	Rateable Value, £3,629,660		5. WEST MIDDLESEX.		Water Rental, £180,098 12 11		Interest and Dividends, £114,216 3 4		Total Capital Raised, £1,154,160	
	436,815	46,604	1,356,722 2 8	13,450,383	57,310 5 3	100,015 7 4	10,132 19 11	85,293 4 10	265,000	1,060,000
	Rateable Value, £3,524,274		6. GRAND JUNCTION.		Water Rental, £157,325 12 7		Interest and Dividends, £95,426 4 9		Total Capital Raised, £1,325,000	
	364,032	57,412	650,517 0 7	8,823,337	28,689 16 1	72,009 18 0	1,687 18 4	67,339 5 0	42,000	678,564
	Rateable Value, £1,893,232		7. KENT.		Water Rental, £100,699 14 1		Interest and Dividends, £69,027 3 4		Total Capital Raised, £720,564	
	257,604	31,929	1,153,522 8 9	9,186,725	33,865 19 4	68,317 11 9	23,383 1 10	46,198 3 8	470,635	680,065
	Rateable Value, £3,133,583		8. CHELSEA.		Water Rental, £102,183 11 1		Interest and Dividends, £69,581 5 6		Total Capital Raised, £1,150,700	
Total—8 Companies.	4,925,060	645,022	13,018,456 5 5	141,269,997	573,990 14 9	1,002,264 1 5	151,390 1 1	831,718 10 2	3,475,376	9,481,124½
	—	Net Increase (3)	Net Increase (3)	Net Increase (3)	Net Increase (3)	Net Increase (3)	Net Increase (3)	Net Increase (3)	Net Increase (3)	Net Increase (3)
	—	68,999	690,775 5 6	6,826,328	38,865 10 6	144,355 16 10	5,842 0 6	110,392 2 10	115,821	521,396½
	Rateable Value, £33,657,965		—	144,592,772 (1883)	Water Rental, £1,576,254 16 2		Total Interest & Dividends £983,108 11 3		Total Capital Raised, £12,956,500½	
					Net Increase (3)		Net Increase (3)		Net Increase (3)	
					£183,221 7 4		£116,234 3 4		£637,217½	

The preceding tabular statement, which summarises the returns of the London water companies, also presents their results for the year ending December 1882 and March 1883 in such a manner as to show the exact increase during the previous three years in rental, capital, working expenses, &c. Some special interest attaches to representing this in the aggregate, chiefly because the year December 1879 and March 1880 was the one upon which the late Mr. E. J. Smith proposed the purchase of the London water undertakings upon a scale which Parliament subsequently declined to sanction. The facts are simply that in three years the companies have spent a further capital sum of £690,775 5*s.* 6*d.*; to the working expenses they have added a further sum of £38,865 10*s.* 6*d.*; the increased profit on trading has been £144,355 16*s.* 10*d.*; the water rentals have increased by £183,221 7*s.* 4*d.*; the increase in the payment of interest is £5,842 0*s.* 6*d.*, and in dividends £110,392 2*s.* 10*d.* The addition to debenture capital is £115,821, and in share capital £521,396 10*s.* In the houses supplied there has been an increase of 68,999. In the quantity of water supplied daily there was also an addition of 6,826,328 per diem for the corresponding year. That which is most likely to attract notice is that an addition of 68,999 house supplies should have incurred an advance in the companies' rentals of £183,221 7*s.* 4*d.* per annum. The large increase in the number of annual supplies is a matter which admits of no doubt whatever, for to any careful observer it will become apparent that the supplies have increased during the last five years at an average of 20,000 a year. The provincial returns which follow will enable the reader to criticise this advance with advantage by comparing it with the rental of any provincial town in which the number of supplies, tenants, or houses approximates with the number indicated in this case.

The remarkable part of this is that most of the provincial towns charging often higher rates, accompanied, however, by important drawbacks, furnish in no case rentals even approaching in corresponding extent to those yielded by our London districts. A reference to the Newcastle and Gateshead Water Company's return will illustrate this more clearly than a whole volume of argument. This large discrepancy in the rentals of the London water companies, in which no corresponding drawbacks exist, must be held to afford grounds for careful inquiry, for it is not so much the rate charged that invites criticism as the aggregate rental obtained.

Such an inquiry would reveal that in London there are a multiplicity of charges beyond the mere rate per cent. on annual value which are made against the consumers that have no existence elsewhere, but which contribute materially in the aggregate to swell the rental to undue proportions, especially with no drawbacks.

The summary previously referred to shows the aggregate rental in 1882-83 to be £1,576,254, the working expenses £573,990—amounting to 36 per cent. of the rental—a fact upon which the companies lay some stress, because plenty of precedents can be found for that proportion. When it is shown that the rentals are in excess, then only will the working expenses and cost of management be proved by the same measure to be what every one knows them to be perfectly well—very high indeed. In the year under review, the total share capital, £9,481,124, received in dividend, £831,718, which is about an average of 8·75 per cent. This must be held to be a very high return for an investment in water companies' stock; and, taking into consideration the very large addition to the companies' annual business already referred to, the moment has certainly come when the consumer may expect some very material concessions from the companies.

It is not very clear whether the London water companies are governed by any restriction of dividend to 10 per cent. Three companies are at least, two directly, one indirectly, dividing dividends this year in excess of that scale; but it must be held that, morally, they are all governed by the restriction, and that Parliament will be forced to impose it when appealed to.

Whenever this is represented to Parliament fairly, upon an intelligible basis, and not diluted with the purposeless agitation about rateable *v.* annual value, about which so much has lately been heard in London, then alone can the ratepayers expect the relief to which they are fairly entitled.

Parliament is not likely to alter the statutory rates per cent. originally settled at present, but a future reduction should be provided for at no distant date. There are at least two extraneous charges that will have to immediately disappear from the demand notes of the companies, while the remainder must be regulated more strictly; and this will answer fully the purpose of a substantial reduction of rates in the measure of what is equitable for the present. The abolition of back dividends is certain, and no company should be allowed to divide more than 10 per cent. On sanitary grounds, supply by meter will not generally be accepted by Parliament, as it would affect the dwellings of the poor prejudicially—of this there has already been sufficient indication. But it is by no means improbable that Parliament will sanction a middle course as regards the City, where, in the case of houses beyond a rental of, say, £500 and upwards, there is no reason whatever for not allowing a meter supply as optional with the consumer, so long as the supply within certain limits is made compulsory and to realise a fair permanent return to the company on a uniform basis. The necessity for regulation of capital is self-evident; since 10 per cent. stock should always be coalesced with new capital at lessening rates. It is contrary to the principles of legislation that any company with a monopoly should enjoy all their capital at the maximum rate; the issue of all new capital should be subject to this rule. The appointment of water referees is urgently required, especially to control and decide on the questions of charges, purity, pollution, distribution, and constant supply.

We hold that no legislative Water Bill will ever be complete that does not contain a clause stipulating in how many years the local authority or water board they appoint may have the right to purchase the interests of the undertakings, subject to an instruction prohibiting anything to be paid for compulsory purchase or prospective interests. If the ratepayer cannot be protected from these exactions, he is far better without the works; and it is wise to recognise that fact in time. When the London ratepayer gets the works, he will be perpetually harassed by well-meaning people with schemes for getting water from all the remotest parts of Great Britain. The Dee in North Wales, the Cumberland lakes, the Scotch lochs, the Severn valley, every part of the kingdom, so long as a gravitating level can be obtained, regardless of distance, will constantly be dangled before him as the only source from which London should be supplied. There are, we believe, a large number of these schemes in portfolio, only awaiting the contingency of purchase for instant production.

We hold it to be a cardinal principle that London has no right to these fields of supply which belong to others; but, if it were otherwise, a supply of this kind, which would in reality entail an outlay of three or four times the undefined sums mentioned by their projectors, would be attended by enormous disadvantages. It would expose a community, the importance of which we have shown will in a few years be enormous and continually increasing, to a water famine at any hour, from the mere rupture of a pipe. Even with a triple line of pipes, a mischievous person could blow up the pipe connection, and London without its accustomed quantity of water for a single day would suffer enormously. There are other considerations of a purely military kind that appear to us to forbid the suggestion of such schemes; but the commercial aspect alone prohibits the introduction of these limited and costly supplies which would soon involve this great city in a most serious rate-in-aid. The present supply is abundant—that is the first consideration upon sanitary grounds; the present sources enable us to keep pace with growing requirements—nothing can exceed the importance of this; and respecting the future, engineers understand the means through which an improvement in the summer flow and compensation for increased abstraction have to be met. What confidence can alien schemes of this kind inspire when actually the quantities proposed to be introduced a few years back are found now to be exceeded by the actual supply to-day? The companies have been unsparingly criticised in these pages from a general point of view, but in common justice to them it must be admitted that as regards the magnitude of the supply and the responsibility of keeping it up regularly, and keeping pace with the annual requirements of the metropolis, the people who are constantly discrediting the character of the supply—representing it as unfit for use and injurious to the community, instead of, as is really the case, contributing, with the magnificent system of the main drainage carried out by Sir Joseph Bazalgette, to a constantly-declining death-rate—fail altogether in doing bare justice to the splendid and costly undertakings with which this metropolis has been fortunately endowed. The system may be excellent of its own kind and yet not free from administrative criticism; that is the case with the water companies. In like manner of the Thames as a source of supply, it must be considered the best and surest, because unfailing, to supply this community. Still it would be better for a more stringent application of the laws of the land concerning pollution, and we look confidently to a day by no means remote when this improvement will be realised.

It will be far better in a matter of this kind to trust to the views of a practical engineer like Sir Robert Rawlinson, who, occupying also a position of the highest responsibility on the sanitary board of this country, has never ceased to promote timely improvement measures in all matters vitally affecting the public health. This eminent engineer recently declared that, while London should have the best water supply that could be given to it, in his opinion to sacrifice the present source and lay out fresh capital to bring in some imaginary pure supply would be gross waste of money, and would not accomplish the object intended.

LONDON WATER SUPPLY.

Statistics of Water Undertakings supplying the City of London and Metropolitan Districts.

1. EAST LONDON WATER WORKS.
2. NEW RIVER WATER WORKS.
3. SOUTHWARK AND VAUXHALL WATER WORKS.
4. LAMBETH WATER WORKS.
5. WEST MIDDLESEX WATER WORKS.
6. GRAND JUNCTION WATER WORKS.
7. KENT WATER WORKS.
8. CHELSEA WATER WORKS.

Statistics of Water Undertakings supplying the

Special Acts. — Capital Cost of Works.	Districts included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Daily Supply.	Trade Purposes.	Flushing, &c.
East London Water Works Company's Acts, 1807, 1853 (Rates), 1854, 1855, 1862, 1867. *Capital Cost of Works.* £ s. d. To December 1882 .. .. 2,146,126 7 6 Net Increase (3 years) £ s. d. December 1879 .. .. 118,208 12 7	Upper and Lower Clapton, Bethnal Green, Homerton, Old Stratford, Stratford-le-Bow, Bromley, Limehouse, Plaistow, West Ham, Leytonstone, &c.— 136,649* Net Increase (3) December 1879 .. 16,190	Pumping Works. — River Lea at Higham Hill, nine miles above the junction of the Lea and Thames, and from the Thames at Sunbury (limited to 10,000,000 gallons per diem).	*Gallons.* — Average quantity supplied in 24 hours, **Gallons .. .. 34,875,151** Net Increase (3 years) December 1879 4,145,217	*Gallons.* —	*Gallons.* —
New River Water Works Company's Acts (Royal Charter), 1609, 1852 (Rates), 1854 (Hertford Sewerage Diversion Act), 1854, 1857, 1866, 1879. *Capital Cost of Works.* £ s. d. To December 1882 .. .. 3,256,078 16 4 Net Increase (3 years) £ s. d. December 1879 .. .. 173,201 2 3	City of London, Strand Union, Shoreditch, St. Pancras, Islington, Stoke Newington, West Hackney, Hornsey, Hampstead, Highgate, parts of Tottenham, Edmonton, Whitechapel Union, St. Anne's, Westminster, St. James', Westminster, St. Luke, Middlesex, Clerkenwell, and all the parishes through which the New River flows— 137,867† Net Increase (3) December 1879 .. 8,313	Conduits and Pumping Works. — The Chadwell Springs, between Hertford and Ware; Wells in the chalk at Ware, Amwell, St. Margaret's, Hoddesdon, Broxbourne, Cheshunt, Enfield, Edmonton, Southgate, and Hornsey, and from the River Lea.	*Gallons.* 20·76 21,277,283 Average quantity supplied in 24 hours, December 1883 .. .. 28,369,711 **Gallons .. .. 27,620,667** Net Increase (3 years) December 1879 208,834	*Gallons.* 6·92=27·68 per head of population 7,092,428	

EAST LONDON.—* Latest, December 1883, 142,273 houses supplied.

‡ High service, defined to be a delivery at an elevation of 10 feet above the pavement in front of the house.

City of London and Metropolitan Districts.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Districts.</th><th colspan="6">Expenditure and Revenue.</th><th rowspan="2">1. Scale of Water Rates or Rents (Domestic Supply).
2. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th colspan="3">Working Expenses per annum.</th><th colspan="3">Profit on Trading per annum.</th></tr>
<tr><td>746,337</td><td>1,069,837</td><td>£
4,535,910</td><td colspan="3">To Dec. 1882,
£91,919 14s. 1d.
Net Increase (3)
Dec. 1879,
£2,109 12s. 4d.</td><td colspan="3">£142,414 4s. 3d.
Net Increase (3)
Dec. 1879,
£28,282 2s. 5d.</td><td rowspan="4">1. On annual value, 5 per cent. per annum—
Water-Closets. Rates. Baths. Per Annum.
Exceeding £30 but not exceeding £50 .. .. .. 4/-
Exceeding 50 but not exceeding 100 .. .. .. 6/-
Exceeding 100 .. .. 8/-
High Service, 25 per cent. additional.
2. Trade (Meter)—<table><tr><th>Low Service.
Quarterly Consumption.</th><th>Per 1,000 gals.</th><th>High Service.</th></tr><tr><td>From 25,000 to 50,000 gallons</td><td>9d.</td><td rowspan="4">25 per cent. additional.</td></tr><tr><td>From 50,000to 100,000 gallons</td><td>8d.</td></tr><tr><td>From 100,000 to 200,000 gallons</td><td>7d.</td></tr><tr><td>All above 200,000 gallons</td><td>6d.</td></tr></table></td><td rowspan="4">Octavius E. Coope, M.P., *Chairman*.
William Booth Bryan, M. Inst. C.E., *Engineer*.
Isaac A. Crookenden, Assoc. Inst. C.E., *Secretary*.</td></tr>
<tr><td></td><td></td><td></td><td colspan="6">Gross amount of Water Rates and Rents for the year ending Dec. 1882,
£234,333 18 4
December 1879 .. £30,391 14s. 9d.</td></tr>
<tr><th>Interest,
£ s. d.</th><th>Dividends,
£ s. d.</th><th>Total Interest and Dividends,
£ s. d.</th><th colspan="2">Preference and Debenture Capital,
£</th><th colspan="2">Ordinary Share Capital,
£</th><th colspan="2">Total Capital Raised,
£</th></tr>
<tr><td>18,495 14 6</td><td>117,208 18 9
7 per cent.</td><td>135,704 13 3
Net Increase (3 years)
Dec. 1879,
£ s. d.
10,761 4 6</td><td colspan="2">394,440</td><td colspan="2">1,695,260</td><td colspan="2">2,089,700
Net Increase (3 years)
Dec. 1879,
£
69,790</td></tr>
<tr><td>877,441</td><td>1,025,000</td><td>£10,684,208</td><td colspan="3">To Dec. 1882,
£160,312 11s. 7d.
Net Increase (3)
Dec. 1879,
£13,624 17s. 7d.</td><td colspan="3">£276,306 15s. 4d.
Net Increase (3)
Dec. 1879,
£26,164 10s. 5d.</td><td rowspan="4">1. On annual value—
Not exceeding £200 .. 4 per cent.
Beyond 200 .. 3 ,, ,,
Beyond 160 ft. Trinity High Water Mark, *one per cent.* additional on annual value.
Water-Closets, Baths, & High Service.‡
Rates. Per Annum.
Exceeding £30 but not exceeding £50 .. .. .. 4/-
Exceeding 50 but not exceeding 100 .. .. .. 6/-
Exceeding 100 but not exceeding 200 .. .. .. 8/-
Exceeding 200 but not exceeding 300 .. .. .. 10/-
Exceeding 300 .. .. 12/-
Each additional, half these rates.
2. Trade (Meter)—<table><tr><th>Low Service.
Quarterly Consumption.</th><th>Per 1,000 gals.</th><th>High Service.
60 Feet above Trinity H.W.M.</th></tr><tr><td>Exceeding .. but not exceeding 50,000</td><td>7½d.</td><td rowspan="4">25 per cent. additional.</td></tr><tr><td>Exceeding 50,000 but not exceeding 100,000</td><td>7d.</td></tr><tr><td>Exceeding 100,000 but not exceeding 200,000</td><td>6½d.</td></tr><tr><td>Exceeding 200,000 ..</td><td>6d.</td></tr></table></td><td rowspan="4">John Miles, *Chairman*.
James Muir, M. Inst. C.E., *Engineer*.
James Searle, *Secretary*.</td></tr>
<tr><td></td><td></td><td></td><td colspan="6">Gross amount of Water Rates and Rents for the year ending Dec. 1882,
£436,619 6 11
December 1879 .. .. .. £39,789 8s.</td></tr>
<tr><th>Interest,
£ s. d.</th><th>Dividends,
£ s. d.</th><th>Total Interest and Dividends,
£ s. d.</th><th colspan="2">Preference and Debenture Capital,
£</th><th colspan="2">Ordinary Share Capital,
£</th><th colspan="2">Total Capital Raised,
£</th></tr>
<tr><td>46,322 15 3</td><td>235,863 3 9
£11 13 6'35 per cent.</td><td>282,185 19 0
Net Increase (3 years)
Dec. 1879,
£ s. d.
32,229 3 3</td><td colspan="2">1,208,146</td><td colspan="2">2,019,958</td><td colspan="2">3,228,104
Net Increase (3 years)
Dec. 1879,
208,146</td></tr>
</table>

NEW RIVER.—† Latest, December 1883, 140,353 houses supplied, and 1,481 meters in use.

Statistics of Water Undertakings supplying the

Special Acts. — Capital Cost of Works.	Districts included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Daily Supply.	Trade Purposes.	Flushing, &c.
Southwark & Vauxhall Water Works Company's Acts, 1845, 1852 (Rates), 1855, 1864, 1867, 1872, 1884. *Capital Cost of Works.* £ s. d. To March 1883 .. .. 1,801,612 15 8 Net Increase (3 years) £ s. d. March 1880 .. .. 23,912 9 10	Southwark, Vauxhall, Battersea, Clapham, Camberwell, Peckham, Rotherhithe, Putney, Wandsworth, Barnes, Kew, Wimbledon, Mortlake, and Petersham— 98,956 * Net Increase (3) March 1880 9,768	Pumping Works. — The Thames above Hampton.	*Gallons.* 22·56 16,718,328 Average quantity supplied in 24 hours, September 1883.. .. .. 20,270,737 **Gallons .. .. 20,021,967** Net Increase (3 years) March 1880 (dec.) 4,012,285	*Gallons.* 4·80=27·36 per head of population 3,552,409	
Lambeth Water Works Company's Acts, 1785, 1834, 1848 (Rates), 1856, 1869, 1871, 1883. *Capital Cost of Works.* £ s. d. To March 1883 .. .. 1,505,754 0 5 Net Increase (3 years) £ s. d. March 1880 .. .. .. 114,880 7 2	Lambeth (including Brixton, Stockwell, Norwood), Newington, St. George the Martyr, St. Saviour's, Clapham, Wandsworth, Streatham (including Balham), Tooting, Merton, Mitcham, Wimbledon, Croydon, Penge, Upper, Lower, and South Norwood, Crystal Palace, Beckenham, Kingston-on-Thames, Surbiton, Ditton, Long Ditton, Esher, East and West Molesey— 73,644 ‡ Net Increase (3) March 1880 10,193	1. The Thames at Molesey, and from springs in the gravel beds and chalk at West Molesey and Ditton. 2. Intake and subsiding reservoirs at Molesey, whence water flows through gravitation aqueduct to the filtering station at Ditton, thence it is pumped to Brixton, and from there the town districts are supplied by gravitation, and about 9,000,000 gallons per day are pumped to the high-service reservoirs, the head of water varying from 100 to 325 feet from Brixton.	*Gallons.* 22·61 11,654,231 Average quantity supplied in 24 hours, March 1884 .. .. .. 15,538,974 **Gallons .. .. 15,750,083** Net Increase (3 years) March 1880 2,173,866	*Gallons.* 7·53=30·14 per head of population 3,884,743	

SOUTHWARK AND VAUXHALL.—* Latest, March 1884, 101,481 houses supplied.

† High service defined to be a delivery at an elevation of 10 feet above the pavement in front of the house.

LAMBETH.—‡ Latest, March 1884, 76,330 houses and other supplies. About 800 meters in use.

City of London and Metropolitan Districts.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Districts.</th><th colspan="6">Expenditure and Revenue.</th><th rowspan="2">1. Scale of Water Rates or Rents (Domestic Supply).
2. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th colspan="3">Working Expenses per annum.</th><th colspan="3">Profit on Trading per annum.</th></tr>
<tr><td rowspan="2">493,340</td><td rowspan="2">754,013</td><td rowspan="2">£
3,713,023</td><td colspan="3">March 1883,
£70,292 15s. 4d.
Net Increase (3)
March 188c,
(dec.) £5,338 13 2</td><td colspan="3">£119,681 11s. 4d.
Net Increase (3)
March 1880,
£23,918 7s. 3d.</td><td rowspan="3">1. On annual value, 5 per cent. per annum—
Water-Closets, Baths, or High Service.†
Rates. Per Annum.<table><tr><td>Exceeding</td><td>but not exceeding</td><td></td></tr><tr><td>£30</td><td>£50 .. .. ..</td><td>4/-</td></tr><tr><td>50</td><td>100 .. .. ..</td><td>6/-</td></tr><tr><td>100</td><td>200 .. .. ..</td><td>8/-</td></tr><tr><td>200</td><td>300 .. .. ..</td><td>10/-</td></tr><tr><td>300</td><td>.. .. .. ..</td><td>12/-</td></tr></table>Each additional, half these rates.
2. Trade (by Meter)—<table><tr><th>Low Service.
Quarterly Consumption.</th><th>Per 1,000 gals.</th><th>High Service.</th></tr><tr><td>From 25,000 to 50,000 gallons</td><td>9d.</td><td rowspan="4">25 per cent. additional.</td></tr><tr><td>From 50,000 to 100,000 gallons</td><td>8d.</td></tr><tr><td>From 100,000 to 200,000 gallons</td><td>7d.</td></tr><tr><td>All above 200,000 gallons</td><td>6d.</td></tr></table></td><td rowspan="3">Sir Henry E. Knight, *Chairman.*
Jas. W. Restler, *Engineer.*
Alfred Jelley, *Secretary.*</td></tr>
<tr><td colspan="6">Gross amount of Water Rates and Rents for the year ending March 1883,
£189,974 6 8
Net Increase (3 years)
March 1880 .. .. £18,579 14s. 1d.</td></tr>
<tr><td>Interest,
£ s. d.
43,342 5 3</td><td>Dividends,
£
69,488
7½ and 8 per cent.</td><td>Total Interest and Dividends,
£ s. d.
112,830 5 3
Net Increase (3 years)
March 1880,
£ s. d.
10,538 12 2</td><td colspan="2">Preference and Debenture Capital,
£
921,200</td><td colspan="2">Ordinary Share Capital,
£
900,800</td><td colspan="2">Total Capital Raised,
£
1,822,000
Net Increase (3 years)
Mar. 1880,
£
32,000</td></tr>
<tr><td rowspan="2">279,390</td><td rowspan="2">538,524</td><td rowspan="2">£
2,544,075</td><td colspan="3">March 1883,
£71,179 3s. 10d.
Net Increase (3)
March 1880,
£12,562 17s. 8d.</td><td colspan="3">£103,840 9s. 9d.
Net Increase (3)
March 1880,
£16,931 14s. 7d.</td><td rowspan="3">1. On annual value—<table><tr><th colspan="2">Rates.</th><th>Per Ann. Ho.</th><th>W.C. (1st)</th></tr><tr><td>Exceeding</td><td>but not exceeding</td><td></td><td></td></tr><tr><td></td><td>£20 ..</td><td>7½ %</td><td>—</td></tr><tr><td>£20</td><td>40 ..</td><td>7 %</td><td>10/-</td></tr><tr><td>40</td><td>60 ..</td><td>6½ %</td><td>12/-</td></tr><tr><td>60</td><td>80 ..</td><td>6 %</td><td rowspan="2">15/-</td></tr><tr><td>80</td><td>100 ..</td><td>5½ %</td></tr><tr><td>100</td><td>.. ..</td><td>5 %</td><td>20/-</td></tr></table>Baths extra (no scale mentioned) and Closets. Additional, half the above rates.
No charge authorised for high service.†
2. Trade (Meter)§—<table><tr><th>Lower Districts (1).
Quarterly Consumption.</th><th>Per 1,000 gals.</th><th>Upper Dist'ct (2)</th></tr><tr><td>From 40,000 to 50,000 gallons</td><td>1/3</td><td>..</td></tr><tr><td>From 50,000 to 100,000 gallons</td><td>1/2 1/1
1/- -/11</td><td>1/6 1/5 1/4
1/3 & 1/2</td></tr><tr><td>From 100,000 to 200,000 gallons</td><td>-/10</td><td>1/1</td></tr><tr><td>All above 200,000 gallons</td><td>-/9 -/8</td><td>1/-</td></tr></table></td><td rowspan="3">P. Pleydell Bouverie, *Chairman.*
John Taylor, M. Inst. C.E., *Engineer.*
S H. Louttit, *Secretary.*</td></tr>
<tr><td colspan="6">Gross amount of Water Rates and Rents for the year ending March 1883,
£175,019 13 7
Net Increase (3 years)
March 1880 .. .. £29,494 12s. 3d.</td></tr>
<tr><td>Interest,
£ s. d.
8,025 6 0</td><td>Dividends,
£ s. d.
96,111 10 10
7½ per cent.</td><td>Total Interest and Dividends,
£ s. d.
104,136 16 10
Net Increase (3 years)
£ s. d.
20,594 19 2</td><td colspan="2">Preference and Debenture Capital,
£
173,955</td><td colspan="2">Ordinary Share Capital,
£
1,292,317½</td><td colspan="2">Total Capital Raised,
£
1,466,272½
Net Increase (3 years)
£ s. d.
69,357 10 0</td></tr>
</table>

LAMBETH.—§ The consumer will have to provide cisterns or other receptacles, of sufficient capacity to contain at least 30 hours' consumption of water; to enter into an agreement to pay a minimum rent of £2 10s. (1)—£3 15s. (2) per quarter; to pay £1 10s. as the cost of fixing the meter, and to deposit with the company the sum of £10 for each supply. If the meter is removed within three years, the consumer will have to pay £1 10s. as the cost of removal.

Statistics of Water Undertakings supplying the

Special Acts. — Capital Cost of Works.	Districts included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Daily Supply.	Trade Purposes.	Flushing, &c.
West Middlesex Water Works Company's Acts, 1806, 1810, 1813, 1852 (Rates), 1860, 1866, 1869. *Capital Cost of Works.* £ s. d. To March 1883 .. .. 1,148,122 13 6 Net Increase (3) £ s. d. March 1880 .. .. 137,743 1 1	Parts of the parish of St. Marylebone, St. Pancras, Paddington, Hampstead, Kensington, Hammersmith, Fulham, Chiswick, Willesden & Hendon— 61,961 * Net Increase (3) March 1880 8,044	Pumping Works. — The Thames above Hampton.	*Gallons.* — Average quantity supplied in 24 hours, **Gallons** .. .. **11,541,684** Net Increase (3 years) March 1880 1,102,117	*Gallons.* —	*Gallons.* —
Grand Junction Water Works Company's Acts, 1811, 1852 (Rates), 1856, 1861, 1868, 1878. *Capital Cost of Works.* £ s. d. To March 1883 .. .. 1,356,722 2 8 Net Increase (3 years) £ s. d. March 1880 .. .. .. 80,558 9 0	Bayswater, St. James', Acton, Ealing, Brentford, Hanwell, Isleworth, Hounslow, Twickenham, Teddington, Hampton— 46,604‡ Net Increase (3) March 1880 .. 5,779	Pumping Works. — The Thames above Hampton, and from gravel beds at Hampton.	*Gallons.* — Average quantity supplied in 24 hours, **Gallons** .. .. **13,450,383** Net Increase (3 years) March 1880 1,694,471	*Gallons.* —	*Gallons.* —

WEST MIDDLESEX.—* Latest, March 1884, 63,898 houses supplied.

‡ Also paid as back dividends—to March 1881, £24,566 10*s.*; March, 1882, £17,423 6*s.*; and March, 1883, £9,221 4*s.* 8*d.*; total, £51,211 0*s.* 8*d.*

City of London and Metropolitan Districts.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Districts.</th><th colspan="6">Expenditure and Revenue.</th><th colspan="3" rowspan="2">1. Scale of Water Rates or Rents (Domestic Supply).
—
2. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th colspan="3">Working Expenses per annum.</th><th colspan="3">Profit on Trading per annum.</th></tr>
<tr><td rowspan="2">320,841</td><td rowspan="2">479,235</td><td rowspan="2">£
3,629,660</td><td colspan="3">To March 1883,
£60,420 9<i>s</i>. 3<i>d</i>.
Net Increase (3)
March 1880,
£8,528 12<i>s</i>. 3<i>d</i>.</td><td colspan="3">£119,678 3<i>s</i>. 8<i>d</i>.
Net Increase (3)
£ <i>s</i>. <i>d</i>.
11,999 17 11</td><td colspan="3" rowspan="2">1. On annual value—
Not exceeding £200 .. 4 per cent.
Beyond 200 .. 3 „ „
All Services more than 200 ft. above Trinity High Water Mark, <i>one per cent.</i> additional.
Water-Closets, Baths, or High Service.§
Rates. Per Ann.
Exceeding £30 but not exceeding £50 .. .. .. 4/-
Exceeding 50 but not exceeding 100 .. .. .. 6/-
Exceeding 100 but not exceeding 200 .. .. .. 8/-
Exceeding 200 but not exceeding 300 .. .. .. 10/-
Exceeding 300 — 12/-
Each additional, half these rates.
2. Trade (Meter)—</td><td rowspan="5">Sir William H. Wyatt, J.P., <i>Chairman.</i>
Thomas Hack, M. Inst. C.E., <i>Engineer.</i>
George B. Hall, <i>Secretary.</i></td></tr>
<tr><td colspan="6">Gross amount of Water Rates and Rents for the year ending March 1883,
£180,098 12 11
Net Increase (3 years)
March 1880 .. .. £20,528 10<i>s</i>. 2<i>d</i>.</td></tr>
<tr><td rowspan="3">Interest,
<i>Nil</i></td><td rowspan="3">Dividends,
£ <i>s</i>. <i>d</i>.
114,216 3 4†
10 per cent.</td><td rowspan="3">Total Interest and Dividends,
£ <i>s</i>. <i>d</i>.
114,216 3 4
Net Increase
March 1880,
£ <i>s</i>. <i>d</i>.
14,353 1 4</td><td colspan="2" rowspan="3">Preference and Debenture Capital,
<i>Nil</i></td><td colspan="2" rowspan="3">Ordinary Share Capital,
£
1,154,160</td><td colspan="2" rowspan="3">Total Capital Raised,
£
1,154,160
Net Increase
March 1880
£
155,529</td><td>Low Service.</td><td></td><td>High Service.</td></tr>
<tr><td>Quarterly Consumption.</td><td>Per 1,000 gals.</td><td></td></tr>
<tr><td>From 25,000 to 50,000 gallons
From 50,000 to 100,000 gallons
From 100,000 to 200,000 gallons
All above 200,000 gallons</td><td>9<i>d</i>.
8<i>d</i>.
7<i>d</i>.
6<i>d</i>.</td><td>25 per cent. additional.</td></tr>
<tr><td rowspan="2">284,823</td><td rowspan="2">436,815</td><td rowspan="2">£
3,524,274</td><td colspan="3">March 1883,
£57,310 5<i>s</i>. 3<i>d</i>.
Net Increase (3)
March 1880,
£4,807 8<i>s</i>. 5<i>d</i>.</td><td colspan="3">£100,015 7<i>s</i>. 4<i>d</i>.
Net Increase (3)
March 1880,
£18,206 13<i>s</i>. 11<i>d</i>.</td><td colspan="3" rowspan="2">1. On annual value of dwelling or other place supplied—
Not exceeding £200 .. 4 per cent.
Beyond 200 .. 3 „ „
Water-Closets, Baths, or High Service.§
Rates. Per Ann.
Exceeding £30 but not exceeding £50 .. .. .. 4/-
Exceeding 50 but not exceeding 100 .. .. .. 6/-
Exceeding 100 but not exceeding 200 .. .. .. 8/-
Exceeding 200 but not exceeding 300 .. .. .. 10/-
Exceeding 300 — 12/-
Each additional, half these rates.
2. Trade (by Meter)—</td><td rowspan="5">W. F. Higgins, <i>Chairman.</i>
A. Fraser, M. Inst. C.E., <i>Engineer.</i>
Ernest O. Coe, <i>Secretary.</i></td></tr>
<tr><td colspan="6">Gross amount of Water Rates and Rents for the year ending March 1883,
£157,325 12 7
Net Increase (3 years)
March 1880 .. .. £23,014 2<i>s</i>. 4<i>d</i>.</td></tr>
<tr><td rowspan="3">Interest,
£ <i>s</i>. <i>d</i>.
10,132 19 11</td><td rowspan="3">Dividends,
£ <i>s</i>. <i>d</i>.
85,293 4 10
8 and 8½ per cent.</td><td rowspan="3">Total Interest and Dividends,
£ <i>s</i>. <i>d</i>.
95,426 4 9
Net Increase (3 years)
March 1880,
£ <i>s</i>. <i>d</i>.
10,216 18 3</td><td colspan="2" rowspan="3">Preference and Debenture Capital,
£
265,000</td><td colspan="2" rowspan="3">Ordinary Share Capital,
£
1,060,000</td><td colspan="2" rowspan="3">Total Capital Raised,
£
1,325,000
Net Increase
March 1880
£
52,680</td><td>Low Service.</td><td></td><td>High Service.</td></tr>
<tr><td>Quarterly Consumption.</td><td>Per 1,000 gals.</td><td></td></tr>
<tr><td>From 25,000 to 50,000 gallons
From 50,000 to 100,000 gallons
From 100,000 to 200,000 gallons
All above 200,000 gallons</td><td>9<i>d</i>.
8<i>d</i>.
7<i>d</i>.
6<i>d</i>.</td><td>25 per cent. additional.</td></tr>
</table>

GRAND JUNCTION.—‡ Latest, March 1884, 48,535 houses supplied.

§ High service defined to be a delivery at an elevation of 10 feet above the pavement in front of the house.

Statistics of Water Undertakings supplying the

Special Acts. — Capital Cost of Works.	Districts included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily. Daily Supply.	 Trade Purposes.	 Flushing, &c.
			Gallons. —	Gallons. —	Gallons. —
Kent Water Works Company's Acts, [illegible] Capital Cost of Works. £ s. d. To December 18[illegible] [illegible] Net Increase (3 years) £ s. d. December 18[illegible] [illegible]	Deptford, Greenwich, Charlton, Woolwich, Plumstead, [illegible], Bexley, [illegible], [illegible], Blackheath, Lewisham, Lee, [illegible], Eltham, Bromley, Chislehurst, [illegible]— [illegible] Net Increase (3) December 18[illegible] [illegible]	Pumping Works. — Wells in the chalk at Deptford, Charlton, Plumstead, [illegible], and Bromley.	Average quantity supplied in 24 hours. Gallons ... ... 8,823,337 Net Increase (3 years) December 18[illegible] 660,575		
Chelsea Water Works Company's Acts, [illegible] Capital Cost of Works. £ s. d. To March 18[illegible] [illegible] Net Increase (3 years) £ s. d. March 18[illegible] ... ... [illegible]	Westminster, St. James's, [illegible] [illegible] Net Increase (3) March 18[illegible] [illegible]	Pumping Works. — The Thames at [illegible].	Gallons. [illegible] [illegible] Average quantity supplied in 24 hours. March 18[illegible] ... ... [illegible] Gallons ... 9,[illegible],725 Net Increase (3 years) March 18[illegible] ... [illegible]	Gallons. [illegible] per head of population [illegible]	

[illegible]

[illegible] December 18[illegible] [illegible]

City of London and Metropolitan Districts.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Districts.</th><th colspan="6">Expenditure and Revenue.</th><th rowspan="2">1. Scale of Water Rates or Rents (Domestic Supply).
2. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th colspan="3">Working Expenses per annum.</th><th colspan="3">Profit on Trading per annum.</th></tr>
<tr><td rowspan="2">281,771</td><td rowspan="2">364,032</td><td rowspan="2">£
1,893,232</td><td colspan="3">To Dec. 1882,
£28,689 16s. 1d.
Net Increase (3)
Dec. 1879,
£1,952 19s. 4d.</td><td colspan="3">£72,009 18s. 0d.
Net Increase (3)
December 1879,
£12,459 17s. 9d.</td><td rowspan="3">1. On yearly value of premises, one closet included—
Rates. Per Ann.
£ s. d.
not exceeding £7 .. .. 0 8 0
Exceeding £7 not exceeding 8 .. .. 0 9 6
Exceeding 8 not exceeding 9 .. .. 0 10 6
Exceeding 20 not exceeding 25 .. .. 1 8 0
Exceeding 50 not exceeding 60 .. .. 3 3 0
Exceeding 70 not exceeding 80 .. .. 3 10 0
Exceeding 80 not exceeding 95 .. .. 3 16 0
Exceeding 95 .. .. 4 per cent. on yearly value.
Second Closet .. 5/- 6/- 7/- 8/- & 10/-
Beyond .. .. 5/- per annum.
First Bath.. .. 6/- 8/- 10/- & 12/-
Beyond .. .. 6/- per annum.
2. Trade (Meter)—
Small supplies, with a minimum consumption guaranteed, 10d. per 1,000 gallons; large ditto, 7½d. per 1,000 gallons.</td><td rowspan="3">George Smith, Chairman.
Wm. Morris, M. Inst. C.E., Engineer.
Alex. Dickson, Secretary.</td></tr>
<tr><td colspan="6">Gross amount of Water Rates and Rents for the year ending Dec. 1882,
£100,699 14 1
Net Increase (3 years)
December 1879 .. £14,412 17s. 1d.</td></tr>
<tr><td>Interest,
£ s. d.
1,687 18 4</td><td>Dividends,
£ s. d.
67,339 5 0
10 per cent.</td><td>Total Interest and Dividends,
£ s. d.
69,027 3 4
Net Increase
Dec. 1879,
£ s. d.
12,882 9 2</td><td colspan="2">Preference and Debenture Capital,
£
42,000</td><td colspan="2">Ordinary Share Capital,
£
678,564</td><td colspan="2">Total Capital Raised,
£
720,564
Net Increase
Dec. 1879,
£
51,715</td></tr>
<tr><td rowspan="2">175,203</td><td rowspan="2">257,604</td><td rowspan="2">3,133,583</td><td colspan="3">To March 1883,
£33.865 19s. 4d.
Net Increase (3)
March 1880,
£617 16s. 1d.</td><td colspan="3">£68 317 11s. 9d.
Net Increase (3)
March 1880,
£6,392 12s. 7d.</td><td rowspan="3">1. On net annual value—
Not exceeding £200 .. 4 per cent.
Beyond 200 .. 3 " "
Water-Closets, Baths, or High Service.§
Rates. Per Ann.
Exceeding £30 but not exceeding £50 .. .. .. 4/-
Exceeding 50 but not exceeding 100 .. .. .. 6/-
Exceeding 100 but not exceeding 200 .. . .. 8/-
Exceeding 200 but not exceeding 300 .. .. .. 10/-
Exceeding 300 .. .. 12/-
Each additional, half these rates.
2. Trade (Meter)—
By special agreement at rates ranging from 6d. to 1s. per 1,000 gallons, on a sliding scale.</td><td rowspan="3">Sir W. H. Wyatt, J.P., Chairman.
A. T. Simpson, M. Inst. C.E., Consulting Engineer.
Lewellyn Lea, Resident Engineer.
Albert Gill, Secretary.
G. H. Gill, Assistant Secretary.</td></tr>
<tr><td colspan="6">Gross amount of Water Rates and Rents for the year ending March 1883,
£102,183 11 1
Net Increase (3 years)
March 1880 .. .. .. £7,010 8s. 8d.</td></tr>
<tr><td>Interest,
£ s. d.
23,383 1 10</td><td>Dividends,
£ s. d.
46,198 3 8
7 & 7½
per cent.</td><td>Total Interest and Dividends,
£ s. d.
69,581 5 6
Net Increase (3 years)
March 1880,
£ s. d.
4,657 15 6</td><td colspan="2">Preference and Debenture Capital,
£
470,635
Decrease (3)
£
66,465</td><td colspan="2">Ordinary Share Capital,
£
680,065
Increase (3)
£
64,465</td><td colspan="2">Total Capital Raised,
£
1,150,700
Net Decrease (3)
‡March 1880,
£
2,000</td></tr>
</table>

CHELSEA.—‡ Latest, March 1884, 32,797 houses supplied. Number of meters in use 320.

§ High service defined to be a delivery at an elevation of 10 feet above the pavement in front of the house.

PROVINCIAL WATER SUPPLIES.

Statistics of Water Undertakings supplying large Manufacturing and Residential Towns in Great Britain and Ireland.

1. MANCHESTER.
2. LIVERPOOL.
3. GLASGOW.
4. BIRMINGHAM.
5. BRADFORD.
6. LEEDS.
7. DUBLIN.
8. EDINBURGH.
9. SHEFFIELD.
10. NEWCASTLE & GATESHEAD.
11. SOUTH STAFFORDSHIRE DISTRICT.
12. NOTTINGHAM.
13. BELFAST.
14. OLDHAM.
15. BOLTON.
16. STOCKTON & MIDDLESBROUGH.
17. KINGSTON-UPON-HULL.
18. DUNDEE.
19. WOLVERHAMPTON.
20. WEARDALE AND SHILDON DISTRICT (DURHAM).
21. LEICESTER.
22. HALIFAX.
23. BRIGHTON.
24. ASHTON-UNDER-LYNE, STALYBRIDGE, DUKINFIELD, MOSSLEY, AND HURST DISTRICT.
25. BURY.
26. HUDDERSFIELD.
27. ROCHDALE.
28. ABERDEEN.
29. BLACKBURN.
30. PRESTON.
31. CARDIFF DISTRICT.
32. DERBY.
33. BIRKENHEAD.
34. PLYMOUTH.
35. GREENOCK.
36. SWANSEA.
37. PAISLEY.
38. BARROW-IN-FURNESS.
39. YORK.
40. BURNLEY.
41. BATH.
42. SOUTHAMPTON.
43. NORTHAMPTON.
44. ST. HELEN'S.
45. CHELTENHAM.
46. SOUTHPORT.
47. DEWSBURY & HECKMONDWIKE.
48. BARNSLEY.
49. MERTHYR TYDVIL.
50. WIGAN.
51. WARRINGTON.
52. NORTH SHIELDS (TYNEMOUTH).
53. HEYWOOD.
54. WAKEFIELD.
55. HASTINGS & ST. LEONARD'S.
56. TORQUAY.
57 CHESTER.
58. EXETER.
59. MACCLESFIELD.
60. LINCOLN.
61. CARLISLE.
62. DARLINGTON.
63. ABERDARE.
64. SCARBOROUGH.
65. PERTH.
66. LANCASTER.
67. DONCASTER.
68. ROSSENDALE (BACUP).
69. LEAMINGTON.
70. KEIGHLEY.
71. DUNFERMLINE.
72. WALLASEY.
73. KILMARNOCK.
74. TUNBRIDGE WELLS.
75. EASTBOURNE.
76. WHITEHAVEN.
77. GOSPORT.
78. PETERBOROUGH.
79. LLANELLY.
80. TREDEGAR.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Liverpool Corporation Water Works Acts, 1847,* 1850, 1852, 1855, 1860, 1862, 1866, 1871, 1880, 1882. *Capital Cost of Works.* £ s. d. Purchase Harrington and Bootle Company's Works 578,684 2 10 Green Lane Works (Construction Account) .. 71,055 13 11 Bootle, Dudlow Lane, Aubrey Street Extension.. .. .. 516,370 5 7 1,166,110 2 4 Deduct Sinking Fund, Green Lane .. .. .. 65,184 3 5 1,100,925 18 11 New Rivington Works.. 1,231,004 16 4 Chorley Works .. .. 21,826 10 9 Vyrnwy Works (in progress) (Construction Account) Dec. 1882 .. 500,342 2 8 £2,854,099 8 8 *Purchase by Town Council of two Companies' Undertakings, 1847.	Liverpool District Chorley 131,280	Catchment Reservoirs at Rivington Pike, 30 miles from Liverpool, equal to a supply of 10,000,000 gallons per diem. This is supplemented by about 6,000,000 pumped from four deep wells at Liverpool in the new red sandstone.	*Gallons.* 10,280,000†	*Gallons.* 5,720,000‡	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. **16,000,000** †Revenue per annum, £76,172 11s. 8d. ‡ Do. (Meter) £55,085 14s. 10d.		
Manchester Corporation Water Works Acts, 1847, 1848, 1879 (Thirlmere Scheme). *Capital Cost of Works.* £ s. d. By cost of Old Water Works .. .. 533,561 8 2 By cost of New Works, Longdendale .. .. 2,563,315 12 6 By cost of New Works, Thirlmere .. .. .. 300,337 18 9 Total £3,397,214 19 5 Paid off (Sinking Fund) 551,241 8 5 Balance due £2,845,973 11 0	Manchester 1. Townships supplied in detail ¶ 2. Supplied in bulk to local authorities and companies** 200,000 houses 6,000 meters	Longdendale Gravitation Works, drawing their supply from a drainage area and the river Etherow, at Woodhead, in the valley of Longdendale, about 20 miles from Manchester, equal to a daily supply of 25,000,000 gallons.	*Gallons.* 12,500,000	*Gallons.* 6,500,000	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. **19,000,000** Compensation 59 cubic feet per second for 12 hours. .. 15,000,000 Total 34,000,000		

LIVERPOOL.—On the 31st August, 1882, the total corporation debt on water account stood for £3,004,096 18*s*. 1*d*. Out of this the outstanding mortgages are represented by £1,046,643 4*s*. 5*d*., the interest on which is £48,015 4*s*. 2*d*., and the balance is represented by Liverpool Corporation Three-and-a-Half per Cent. Stock. No. 1 Stock specially applicable to the redemption of mortgages, £1,322,453 13*s*. 8*d*., and Stock No. 2 applicable to the construction of the Vyrnwy Works, viz., £635,000. The interest on Stock No. 1 is £38,756 7*s*. 10*d*., and so much of the interest due on Stock No. 2 is down for £13,300, to the 30th December, 1882, so that the interest attributable to both stocks for that year is £52,056 7*s*. The total amount, subject to an unimportant correction, is £100,262 3*s*. 4*d*. For 1883 this item is estimated to reach £131,000. On the 30th December, 1882, the depreciation fund amounted to £216,122 17*s*. 9*d*.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). — Dividends and Interest (Companies).		
493,405 B	552,508§ B	£ 3,416,249	£ s. d. 77,622 16 4	£ s. d. —	£ s. d. 100,262 3 4	1. Public Rate 6*d*. in the £ on rateable value within the city, £67,961 7 8	Anthony Bower, *Chairman.*
98,658	164,511		Gross amount of Water Rates and Rents (included in items 1, 2, and 3), for the year ending December 30th, 1882, **£207,158 18 0**‖			2. Domestic Water Rent, 6*d*. in the £ within the city, 9*d*. in the £ rural districts; offices, lock-up shops, and workshops, 2*d*. in the £ within, 5*d*. rural districts; and compound dwelling-houses and shops charged on two-thirds rateable value, water-closets included. The maximum authorised rates are 1*s*. within and 1*s*. 3*d*. beyond.	T. & C. Hawksley, MM. Inst. C.E., Geo. F. Deacon, M. Inst. C.E., *Engineers.*
Out-Townships.	Out-Townships.		£ s. d. 1. Public Rate .. 67,961 7 8 2. Water Rent .. 72,852 11 2 3. Meter Supply .. 40,890 4 8 Do. Shipping 12,138 1 7 4. Chorley .. .. 3,320 0 6 5. Miscellaneous .. 9,996 12 5 £207,158 18 0			3. Manufacturers by meter, 7*d*. (city), 9*d*. (rural districts) per 1,000 gallons, Shipping 7*d*. % gallons.	Geo. J. Atkinson, *Town Clerk.* Harcourt E. Clare, *Dep. Town Clerk.*
592,063	717,019 (1881)						
	§560,377 (1882)		‖ This left a surplus of £21,367 2 7 carried forward as usual to next year's account.				
601,771	750,000	3,845,573	£ s. d. 60,626 19 0	£ s. d. 43,538 18 10 (Sinking Fund)	£ s. d. 121,817 18 6	1. Public rate of 3*d*. in the £ on the Poor's Rate assessment (city), £27,390 1 11	Alderman Henry Patteson, *Chairman.*
154,435	150,000	685,967	Gross amount of Water Rates and Rents (included in items 1, 2, and 3), for the year ending December 1883, **£210,250 14 0**			2. Domestic Water Rate of 9*d*. in the £ upon the Poor's Rate assessment (city). Beyond limits of the city, domestic dwellings 1*s*. in the £ on the rack rent. Shops with dwelling-houses are charged upon the whole premises unless under exceptional cases. Water-closets and baths included in above.	J. F. La Trobe Bateman, F.R.S., M. Inst. C.E., *Constructing Engineer.*
756,206	900,000		£ s. d. 1. Domestic in .. 87,207 7 1 2. Trade ,, .. 77,636 1 2 3. Public Rate (City) 27,390 1 11 4. Salford .. .. 6,500 0 0 5. Local Authorities and Companies 11,517 3 10 £210,250 14 0			3. Meter supply 2*s*. per 1,000 gals., reducing down to 4.85*d*. per 1,000 gals. (3,000,000), per quarter. Meter charges (per ann.):— ⅜" ½" ¾" 1" 1½" 2" 4/ 6/ 8/ 10/ 14/ 18/ Cost of repairing on same scale.	T. H. G. Berrey, Assoc. Inst. C.E., *General Outdoor Superintendent.* Sir Joseph Heron, *Town Clerk.* W. H. Talbot, *Deputy Town Clerk.*

MANCHESTER.

Manchester
Hulme
Chorlton-on-Medlock
Ardwick
Newton Heath
Cheetham
Rusholme
Broughton
Pendleton
Beswick
Bradford
Droylsden
Stretford
Openshaw

¶ *Townships supplied in detail:—*

Gorton
Denton
Crumpsall
Haughton
Withington
Worsley
Barton-on-Irwell
Eccles
Prestwich
Pendlebury
Flixton
Urmston
Blackley
Burnage
Chorlton-cum-Hardy
Didsbury
Harpurhey
Levenshulme
Moss Side
Moston

** *Supplied in bulk to local authorities and companies who distribute it in the following townships:—*

Salford
Bollington
Dunham Massey
Partington
Carrington
Ashton-on-Mersey
Sale
Northenden
Timperley
Bowdon
Altrincham
Hale
Ashley
Baguley
Atherton
Tyldesley
Newton
Godley
Werneth
Hyde
Stock

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily. Domestic Supply.	 Trade Purposes.	 Flushing, &c.
Glasgow Corporation WaterWorks Acts, 1855, 1859, 1860, 1865, 1866, 1873, 1877, 1879, and 1882. *Capital Cost of Works.* £ s. d. Sh. Capital £303,700 at 4½ p.c. .. .. 13,666 10 0 Ditto £221,680 at 6 p.c. .. 13,300 16 0 Total Annuities .. £26,967 6 0 Capitalised at 25 years .. 674,182 10 0 Funded Debt .. .. 234,780 0 0 Loans on Mortgages .. 1,401,064 10 0 2,310,027 0 0 Paid off Sinking Fund .. 265,387 0 0 Balance due.. .. 2,044,640 0 0	Glasgow City and District. Ho. 164,300	Loch Katrine, Gravitation Works, with a drainage area of 43,000 acres, and the Gorbals Water Works and River Supply Works.	*Gallons.* (1)	*Gallons.* (2)	*Gallons.* —
			Average quantity supplied in 24 hours, *Gallons.* 35,806,742 Loch Katrine 4,020,618 Gorbals **39,827,360** 2,218,124 River 42,045,484 £ s. d. (1) Revenue per annum .. 64,989 8 1 (2) ,, ,, .. 76,237 10 2½ £141,226 18 3½		
Birmingham Corporation Water Works Acts,* 1875, 1879, 1883 (Consolidation Act). *Capital Cost of Works.* £ s. d. Cost of Works (1875) .. 1,534,170 2 11 Extensions, 31st Dec., 1883 380,339 18 8 1,914,510 1 7 Less Sinking Fund, 31st Dec., 1883 .. .. .. 7,529 14 1 £1,906,980 7 6 * Purchase by Town Council, 1875.	Birmingham, Edgbaston, Aston-juxta-Birmingham, Duddeston, Duddeston-cum-Nechells, Coleshill, Curdworth, Sheldon, Elmdon Church, Bickenhill, and Solihull, all in the county of Warwick, King's Norton, Northfield, and Yardley, in the county of Worcester, Harborne, except so much as is situated within the township of hamlet of Smethwick, and a contingent supply to the parish of Handsworth, upon agreement with South Staffordshire Water Co., in the county of Stafford. 85,000 houses supplied, 1,899 meters in use.	The supply is derived from surface waters and wells in the new red sandstone. The former being the rivers Bourne and Blythe, Perry, Witton and Plants Brooks. The wells are situated at Aston, Perry, Short Heath, King's Vale, and Selly Oak. The Water Department have recently undertaken and completed an important addition—viz., the Shustoke Reservoir, 400 million galls., whereby the total storage is increased to 645 million. Birmingham and district is divided into four zones, or levels. The lowest zone is supplied by once lifting of the waters by engine power. The second zone by lifting one portion once and the rest twice. The third zone by once, twice, and three times some portion of the supply. The fourth, or top zone is supplied by a stand-pipe, and the water lifted the same as the third zone. The total lift may be taken as 450 feet.	*Gallons.* —	*Gallons.* —	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. .. **11,780,000** River Water .. .. 6,480,000 Well do. .. .. 5,300,000 11,780,000 Total daily available water: Streams .. .. .. 7½ millions. Wells .. .. .. 9 ,, Storage .. .. .. 10 ,, Total.. .. .. 26½ ,,		

BIRMINGHAM.†—The foregoing, both as regards "population" and "rateable value," does not include the parishes of Coleshill, Curdworth, Sheldon, Elmdon, Church, Bickenhill, and Solihull, power to supply water to these places being taken under the Birmingham Corporation Consolidation Act, 1883.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations.) Dividends and Interest (Companies).		
550,000	765,000	No information	£ s. d. 47,715 15 0	£ s. d. 26,735 3 10	£ s. d. 26,967 6 0 Annuities 54,329 15 7 Interest 81,297 1 7	1. Public Water Rate, within the City and Royal Burgh, 1*d.* in the £ of Rental, £12,683 12*s.* 9½*d.* (3) 2. Domestic Rate on Rental—within limits of Compulsory Supply, 8*d.* in the £. Beyond, 11*d.* in the £. Water-Closets and Baths included. Supplies by Meter. 3. At the rate of £1 13*s.* 4*d.* per 100,000 gals. Minimum charge £3 per annum. 2,673,976,070 gals. at 4*d.* per 1,000 gallons. River Works, 786,696,991 gals. at 5*s.* 6*d.* per 100,000 gals.	James Torrens, *Chairman.* James M. Gale, M. Inst. C.E., *Engineer.* Robert Wilson, *Treasurer.* James D. Marwick, LL.D., *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 28th May, 1883, **£155,748 0 5** 1. Domestic Supply £ s. d. £ s. d. 64,989 8 1 2. Trade Charges, 26,133 1 3½ Do. Meter Supply 47,719 4 7 Do. River Supply 2,385 4 4 76,237 10 2½ 3. Public Water Rate 12,683 12 9½ £153,910 11 1				
343,787	408,000† B Out-Townships 151,938 559,938 (1881) 414,846 B (1883)	1,550,700 664,931	£ s. d. 42,403 0 2	£ s. d. 2,443 17 9	£ s. d. 53,901 13 3 Annuities 18,603 17 10 Interest, Stock, and Loans 72,505 11 1	1 None.§ 2. On Rateable value, Landlords compounding Houses let or not— (1) *Weekly Rents.* Per Ann. Not exceeding 3/6 .. .. 6/- „ „ 5/- .. .. 8/- „ „ 6/6 .. .. 10/- „ „ 6/9 .. .. 12/- 7/-, 7/3, 7/6, 7/9, 8/- .. .. 14/- 8/3, 8/6, 8/9 .. .. 16/- 9/-, 9/3, 9/6, 9/9, 10/- .. .. 18/- (2) *Annual Rents.* Exceedg. £26, but not exceedg. £35, 24/- „ 35, „ „ 40, 32/- „ 40, „ „ 50, 38/- *Tenants.* One Closet allowed, additional not exceeding 4/- Baths— Per Ann. Not exceeding .. £25 .. 6/- „ „ .. 50 .. 8/- Exceeding .. .. 50 .. 10/- *Annual Rents.* £17 10/- .. 16/- Exceeding £17 10/- but not exceeding 20 .. £1 0/- 20 25 .. 1 4/- 25 30 .. 1 10/- 30 35 .. 1 12/- 35 40 .. 1 18/- 40 50 .. 2 6/- 50 5 per cent. Retail shops, offices, and warehouses from £2 to £4 up to an annual rent of £210, exceeding that 2 per cent. on rent. 3. Trade (Meter) scale 1/4 to 6*d.* per 1,000 gals.	Thomas Avery, *Chairman.* John W. Gray, M. Inst. C.E., *Engineer.* Thomas Starkey, *Secretary.* Edward Orford Smith, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending Dec. 1883, **£115,178 13 9** Ordinary domestic supplies, and for supplies for domestic and trade purposes combined .. 87,578 2 6 (£ s. d.) Measured, or meter supplies .. .. 25,980 13 0 113,558 15 6 Other sources of Revenue 1,619 18 3 £115,178 13 9				

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§ The deficiency £2,173 15*s.* 3*d.* together with a payment of £2,000 for interest on reserve fund made to the borough fund, are charged upon the water reduction fund, reducing the amount to the credit thereof on the 31st December, 1883, to £3,942 9*s.* 8*d.*

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. / Capital Cost of Works.	Townships included in Water Limits. / Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Bradford Corporation Water Works Acts, 1854*, 1855, 1858, 1862, 1868, 1869, 1873, 1875, 1878. *Capital Cost of Works.* £1,869,737 0 0 Paid off .. .. 165,233 0 0 Balance due .. £1,704,504 0 0 * Purchased in 1854 at a cost of £191,816.	Bradford Denholme Gate Tong Local Authorities † Water Companies ‡ (supplied in bulk)	There are two separate systems of gravitation Water Works. The high-level supply necessary to meet the great variations of level in different parts of Bradford is entirely drawn from the head waters of streams which fall into the River Aire. The low-level service depending upon springs and streams which are in the basin of the Wharfe. These are collected and stored in impounding reservoirs at Heaton (31 million), Chelker (228 m.), and Barden in Wharfedale (483 mil.) The latter did not exhaust, however, the capabilities of the drainage area, and an additional reservoir the Upper Barden (457 m.) has lately been completed on a site two miles higher up the Barden Beck. This reservoir, remarkable for affording the highest embankment in the country, 125 feet, has been constructed by Mr. A. R. Binnie, M. Inst. C.E., and, in point of efficiency and stability, has proved one of the most successful engineering works of this description on record.	4,574,000 Average quantity supplied in 24 hours, *Gals.* Borough .. .. .. 7,670,000 Out Townships 1,130,000 **8,800,000**	3,096,000	
			Gallons.	*Gallons.*	*Gallons.*
Leeds Corporation Water Works Acts, 1852 (purchase), 1862, 1867, 1874, 1877. *Capital Cost of Works.* £1,465,133 0 0	Leeds Roundhay Morley Churwell Rothwell Oulton-cum-Woodlesford 72,026	The River Washburn, a tributary of the Wharfe, furnishes a supply which is impounded in reservoirs with a drainage area of 22,000 acres at a distance of 15 miles from Leeds. The whole of the town supply is filtered at Westwood previous to distribution, a portion being pumped to the high-service reservoirs at Bramley and Moor Town. The latest addition to storage is the Eccup extension, which brings up the total storage of the Washburn scheme to 4,000 millions, equal to 200 days' supply upon a nominal 20 millions per diem. The actual supply is 8 millions.	5,025,000 Average quantity supplied in 24 hours, **Gallons** **7,997,000**	2,972,000	

BRADFORD.—† Clayton, Cleckheaton, Drighlington, Eccleshill, Heaton, Hunsworth, North Bierley, Thornton, Gildersome, Birstal.

‡ Calverley District Company, Rawfolds District Company, Gomersal Water Company, and Allerton Water Company.

§ For a considerable portion of the debt the corporation have been allowed 100 years for repayment; for the remainder, 200 years.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations.) Dividends and Interest (Companies).		
		£	£	£	£		
147,101	183,080 B 180,960 Out-Townships 364,040 (1881)	959,558	14,316	7,500§	68,800	1. None. 2. On Annual Value, 5 per cent. to 7½ per cent. Exceeding £20 but not exceeding £20 .. 7½ per cent. Exceeding 60 but not exceeding 60 .. 7 ,, Exceeding 80 but not exceeding 80 .. 6½ ,, Exceeding 100 but not exceeding 100 .. 6 ,, Exceeding 100 .. 5 ,, Baths and W.C.'s, 3*s.* to 12*s.* per annum. 3. Trade (meter), 3½*d.* to 1*s.* per 1,000 gallons. 20 per cent. additional summer. Local Authorities, &c., supplied in bulk from 9*d.* to 1*s.* per 1,000 gallons.	L. Robertshaw, *Chairman.* A. R. Binnie, M. Inst. C.E., *Engineer.* W. T. McGowan, *Town Clerk.*
			Gross amount of Water Rates and Rents for the year ending 25th March, 1882, **£89,737**				
			£	£	£		
259,212 B 15,855 Out-Townships 275,067	309,119 B 25,235 Out-Townships 334,354	1,141,671	12,775	—‖	56,463	1. None. £21,332 3*s.* 5*d.* in discharge of arrears of Sinking Fund charged on Borough Fund (April 1883). 2. On Rental or Annual Value 5 per cent. to 7½ per cent. authorised. Where Rental exceeds £10, and is less than £20, 1*s.* in the £—*i.e.*, 5 per cent. Exceeding £20 and less than £25 .. £1 1*s.* Exceeding 25 and less than 30 .. 1 5*s.* Exceeding 50 and less than 60 .. 2 5*s.* Exceeding 100 and less than 250 .. 4 per ct. Beyond the borough 10 to 20 per cent. more.	Ald. Boothroyd, *Chairman.* E. Filliter M. Inst. C.E., *Engineer.* G. W. Morrison, *Town Clerk.*
			Gross amount of Water Rates and Rents for the year ending 31st Aug., 1882, **£77,082**				

LEEDS.—‖ Under the Act of 1877, the redemption of capital was imposed on the undertaking at the rate of 1 per cent. on the amount borrowed, so as to redeem the capital in 50 years—1927. This incurs a contingent deficiency, in arrears of which £21,332 3*s.* 5*d.* has lately been charged on the borough fund. Previous to 1877, however, surplus profits from the water department amounting to £141,695 were paid into that fund.

Statistics of Water Undertakings supplying large Manufacturing

<table>
<tr><th rowspan="2">Special Acts.
Capital Cost of Works.</th><th rowspan="2">Townships included in Water Limits.
Number of Houses supplied.</th><th rowspan="2">Description of Works and Source of Supply.</th><th colspan="3">Water supplied daily.</th></tr>
<tr><th>Domestic Supply.</th><th>Trade Purposes.</th><th>Flushing, &c.</th></tr>
<tr><td rowspan="2">Dublin Corporation Water Works Acts, 1861, 1863, 1865, 1870, 1874.
<i>Capital Cost of Works.</i>
£640,000</td><td rowspan="2">Dublin City
Bray (4<i>d</i>. in the £)
Clontarf (4<i>d</i>.)
Dalkey (4<i>d</i>.)
Drumcondra, Glasnevin, and Clonliffe (6<i>d</i>.)
Kingstown (5<i>d</i>.)
Kilmainham (4<i>d</i>.)
Killiny and Ballybrack (4<i>d</i>.)
Pembroke (3½<i>d</i>.)</td><td rowspan="2">The supply is from the River Vartry, which rises on the southern base of the great Sugar Loaf Hill, and, after a run of 17¼ miles, discharges into the sea at Wicklow. The total catchment area is 34,890 acres.
The drainage area above the site of the embankment, which extends over the lower Silurian and Cambrian slate formations, is about 14,080 acres, and the amount impounded in Lough Vartry, 2,420 millions, is capable of furnishing 200 days' supply. The water is filtered and conveyed partly through tunnels and pipes to Dublin, a distance of 24½ miles.</td><td><i>Gallons.</i>
5,741,642*</td><td><i>Gallons.</i>
Meters(City)
1,790,000</td><td><i>Gallons.</i>
200,000</td></tr>
<tr><td colspan="3">Average quantity supplied in 24 hours,
<i>Gallons.</i>
Borough 7,731,642
Townships 2,191,131
Vartry Water .. 9,922,773
Sent over Callow Hill Weir, 14,725,000
Canal Water, 936,000 gals. daily.</td></tr>
<tr><td rowspan="3">Edinburgh and District Water Trust Acts, 1869,‡ 1874, 1876, 1877, 1880.
<i>Capital Cost of Works.</i>
Water Company Bonds £133,000
Mortgage Debt 625,544
£758,544
Paid off by Sinking Fund .. 26,100
£732,444
Annuity Capital 6 per cent. = £24,168 12<i>s</i>. 11<i>d</i>. 414,000
£1,146,444
‡ Purchased by Town Council in 1869.</td><td rowspan="3">Edinburgh
Leith
Portobello</td><td rowspan="3">These gravitation works include a supply from the Pentland Hills originated by the late Company, and about an equivalent supply from the Moorfoot Hills, which include a drainage area of 14,500 acres.
The latter scheme has been carried out by the Trust, and the works constructed by Messrs. J. & A. Leslie, MM. Inst.C.E., the potential limits of this supply reckoned within 7,342,972 per diem. The water now distributed to the City and District is drawn from seven storage reservoirs, after allowing for compensation. This is allowing an entire supply of 15 million per diem on an average of dry years—viz., 25 gals. for a population of 600,000. The maximum quantity, in Dec. 1882, reached 17,535,000 equal to 50 gals. per head.
The Alnwick Hill Service Reservoir unites the Glencorse and Moorfoot Hill Supplies.</td><td><i>Gallons.</i></td><td><i>Gallons.</i></td><td><i>Gallons.</i></td></tr>
<tr><td colspan="3">No information. In 1869 manufacturing purposes took 14 per cent.</td></tr>
<tr><td colspan="3">Average quantity supplied in 24 hours,
<i>Gals.</i>
(1) Swanston and Comiston .. 117,000
(2) Bavelaw and Liston Shiells 4,050,000
(3) Glencorse 2,700,000
(4) Torduff 450,000
Pentland Hills
Available Supply. Compensation.
7,317,000 1,980,000
Through Alnwick Hill Service Reservoir—
Gladhouse 4,943,000
Portmore 269,000
Tweeddale 199,000
Moorfoot Hill
5,411,000 2,995,400§
Gallons 12,728,000
39·18 to a population of 324,800.
§ The two compensation reservoirs will have cost £68,000. The Edgelaw is completed, but not the Rosebery.</td></tr>
</table>

* With 500,000 gallons for extra municipal supplies.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
(City) 246,326	(City) 249,602	£ 661,191	£ s. d. †23,512 17 11	£ s. d. 12,336 7 8	£ s. d. 9,631 2 3 12,643 12 4 22,274 14 7	1. 3*d.* in the £, one-half applicable to Fire Brigade purposes, £7,475 8*s.* 11¾*d.* 2. Domestic Rate, 1*s.* in the £. 3. Trade (meter) Vartry Water— Maximum .. 6*d.* per 1,000 gals. Minimum .. 4*d.* ,, ,, Canal Water— Maximum .. 5*d.* per 1,000 gals. Minimum .. 2*d.* ,, ,,	John Campbell, J.P., *Chairman.* E. Dwyer Gray, M.P., *Dep. Chairman.* Parke Neville, M. Inst. C.E., *Engineer.* John J. Lalor, J.P., *Secretary.* John Beveridge, *Town Clerk.*
(Townships) 71,524	(Townships) 78,353	299,257	Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 31st Dec., 1883, **£60,020 14 10** Arrears of years prior to 1883 .. .. .. £4,691 *s.* 0 *d.* 0 Gross collection on account of assessment of £7,500 for Public Water Rate .. .. 7,475 8 11¾ Ditto on account of assessment of £28,000 for Domestic Water Rate .. .. .. 27,756 8 6¼ Ditto on account of £14,000 for Meter Rents .. .. .. 13,481 13 6 Ditto on account of £1,600 for Contract Rental .. .. .. 1,240 12 1 Ditto on account of £8,000 for extra Municipal Districts 5,375 11 9 Total £60,020 14 10				
317,850	327,955						
196,979	228,357		£ s. d. 18,434 4 4	£ s. d. 7,439 18 9	£ s. d. Ann. 24,168 12 11 Int. 26,761 1 6 50,929 14 5	1. Public Rate 1*d.* in the £ on lands and heritages, £8,295 4*s.* 2. Domestic Rate—Houses not exceeding £5 rent, 4*s.* each; exceeding £10, 8*d.* in the £. W.C.'s and baths included in above. Shops, warehouses, 2*d.* in the £. 3. Manufacturers by meter, 6*d.* per 1,000 gals.	George Harrison, Lord Provost, *Chairman.* J. & A. Leslie and Reid, MM. Inst. C.E., *Engineers.* R. A. F. Coyne, *Superintendent.* W. H. Cameron, *Treasurer.*
49,761 Out-Burghs	64,990 Out-Burghs						
246,750	293,347	2,030,560	Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 15th May, 1883, **£79,220 7 11½** £ *s.* *d.* (1) Pub. Rate.. .. 8,295 4 0 (2) Domestic Rate.. 47,045 0 9 Special Charges.. 10,671 1 1½ (3) Meters .. .. 13,246 10 1 Shipping 562 12 0 £79,220 7 11½				
	324,800 (1884)						

DUBLIN.—† Including for fire brigade purposes £3,496 19*s.* 5*d.*

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Sheffield Water Works Company's Acts, 1853, 1860, 1864, 1866, 1867, 1873. *Cost of the Works.* Bradfield Disaster (1864)† .. Dale Dyke and Damflask and Dale Dyke Extension 1871-83 . .. . } £1,693,000	Sheffield 64,118 December 1883	The head waters of the Rivelin and Loxley, tributaries of the River Don, the gathering ground being chiefly moorland, lately supplemented by the Dale Dyke and Damflask reservoirs.	*Gallons.* —	*Gallons.* —*	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. .. **4,858,384** * Water supplied by meter, £21,000		
Newcastle and Gateshead Water Works Company's Acts, 1845, 1863, 1866, 1870, 1876, 1877. *Capital Cost of Works.* February 1883 .. .. £978,417 16 0	Newcastle-on-Tyne Gateshead Felling Walker Whickham Wallsend Willington Quay Longbenton Meters, 889 Tenants, 62,828	The supply is drawn from large impounding reservoirs at Whittle Dean and Hallington, the storage extent of which corresponds with 1,200 million gals. These have been lately nearly doubled by the completion of the Swinburn extensions undertaken under Acts 1876, 1877. Total, 2,300 million gallons.	*Gallons.* (1) 7,600,000	*Gallons.* (2) 3,400,000	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. **11,000,000** (1) Revenue per an. £38,419 11 4‖ (2) Do. do. £33,117 12 11 (February 1884.)		

‖NEWCASTLE AND GATESHEAD.—The receipts for the current year (February 1884) are £71,537 4*s*. 3*d*. and the dividends announced are at the rate of 7⅜ % on ordinary stock (limited to 10 %) and £5 8*s*. 6*d*. on ordinary shares [1876] (limited to 7 %).

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
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<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td rowspan="2">239,947</td><td rowspan="2">300,000</td><td rowspan="2">£
978,178</td><td>£ s. d.
—</td><td>£ s. d.
—</td><td>£ s. d.
11,546 5 0
·.·2½%</td><td rowspan="2">2. On rent or annual value of tenement— s. d.
Under £7 (6%), not to exceed 7 2
Exceeding £7, but not exceeding £8.. .. .. .. 8 0
Maximum between<table><tr><td>£8–£10,</td><td>£0 10 0</td><td>£30–£35,</td><td>£1 10 0</td></tr><tr><td>10– 12,</td><td>0 12 0</td><td>35– 40,</td><td>1 15 0</td></tr><tr><td>12– 15,</td><td>0 14 0</td><td>40– 50,</td><td>2 0 0</td></tr><tr><td>15– 18,</td><td>0 16 0</td><td>50– 60,</td><td>2 5 0</td></tr><tr><td>18– 20,</td><td>0 18 0</td><td>60– 70,</td><td>2 10 0</td></tr><tr><td>20– 25,</td><td>1 0 0</td><td>70– 80,</td><td>2 15 0</td></tr><tr><td>25– 30,</td><td>1 5 0</td><td>80–100,</td><td>3 0 0</td></tr></table>And from £100 in proportion, except that no charge can exceed £6, or be less than 7*s.* 2*d.*
Cesspools, closets, w.c., are charged extra, where annual rack-rent under £10..4/-
Between £10—£25.. 5/-
25— 50.. 6/-
50— 100.. 7/6
Beyond 100 .. 10/-
and every additional closet, 4/- extra.
3. Trade Supplies—
Under 500,000 gals., 10*d.* per 1 000 gals., and such quantities in excess upon the reduced scale.
½ million — 1 million .. 9*d.*
1 ,, — 1½ ,, .. 8*d.*
1½ ,, — 2 ,, .. 7*d.*
2,000,000 and upwards 6*d.*</td><td rowspan="2">P. Blakelock, J.P., *Chairman.*
T. & C. Hawksley, MM. Inst. C.E., *Engineers.*
No reappointment of General Manager.
B. P. Broomhead, *Secretary.*</td></tr>
<tr><td colspan="3">Gross receipts from Water Rates for the year ending December 1883,
£75,000
† The Bradfield disaster (1864) incurs an outlay for interest of £18,000 per annum, partly met by an increase of 25 % on all Water Rates (Act 1864), allowed during 25 years, calculated to be worth now £14,000, upon the receipts.</td></tr>
<tr><td rowspan="2">218,721</td><td rowspan="2">274,424</td><td rowspan="2">1,156,331</td><td>£ s. d.
14,681 9 5</td><td>£ s. d.
. .</td><td>£ s. d.
44,076 2 3¶
Dividend.
8,554 13 5
Debentures, &c.
52,630 15 8</td><td rowspan="2">2. On rent or annual value of premises—
Maximum, 5½%: Minimum, 3%<table><tr><th>Rent or Annual Value.</th><th>Dwelling Houses.</th><th>Shops with D. Houses.</th></tr><tr><td>£</td><td>£ s. d.</td><td>£ s. d.</td></tr><tr><td>7</td><td>0 7 0</td><td></td></tr><tr><td>10</td><td>0 10 6</td><td>0 10 0</td></tr><tr><td>20</td><td>1 0 0</td><td>0 19 0</td></tr><tr><td>26—30</td><td>1 6 0 (m.)</td><td>1 4 0</td></tr><tr><td>50</td><td>2 0 0</td><td>1 12 0</td></tr><tr><td>73—85 (mean)</td><td>2 13 0 (m.)</td><td>1 18 0</td></tr><tr><td>100</td><td>3 0 0</td><td>2 0 0</td></tr><tr><td>Above 100</td><td>3 per cent.</td><td>2 per cent.</td></tr></table>Lock-up shops and offices are charged half the annual value:
Water-Closets.—Not exceeding £20, 6*s.* per annum: £20-50, 8*s.*; beyond £50, 10*s.* *Baths*, 6*s.* each.
Meter Supply.—A scale beginning at 1*s.* per 1,000 gals. (low service), and 2*d.* extra per 1,000 gals. for high service, reducing upon increasing quantities down to 6*d.* per 1,000 gals. (low service), and 8*d.* for high service.**</td><td rowspan="2">Benjamin Plummer, J.P., *Chairman.*
J. F. Bateman, M. Inst. C.E., *Consulting Engineer.*
J. R. Forster, *Resident Engineer.*
George Smith, *Secretary.*</td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending February 1883,
£68,605 13 1
¶ Divid., 7½ %, Ord. Stock .. £388,390
Do. 5½ % do. (1876) 141,397
Do. 5 % Pref. Stk. & Sh. ('76) 211,605
£741,392
Deb., 4½ %, Cap., £191,525.</td></tr>
</table>

** All consumers above 5,000,000 gals. per quarter will be charged in addition thereto 5*d.* per 1,000 gals. for low service and 7*d.* per 1,000 gals. for high service (above 200 feet sea level). Meter hire, 15 % on cost and fitting.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
South Staffordshire Water Works Company's Acts, 1853, 1857, 1864, 1866, 1875, 1878. *Capital Cost of Works.* £795,169 10 2	Burton-on-Trent and district Lichfield Burntwood Cannock Walsall Pelsall Rushall Darlaston Aldridge West Bromwich Wednesbury Rowley Regis Tipton Sedgley Kingswinford Smethwick Dudley Cradley Halesowen Oldbury Sutton Coldfield 49,043 supplied	Water pumped from tunnel driven for about four miles as a gathering conduit through red sandstone at Lichfield, and another gathering ground at Cannock, where there are two wells from which water is pumped and conveyed to several impounding reservoirs for different levels.	*Gallons.* 3,180,764	*Gallons.* 1,607,239	*Gallons.* Included in trade. No separate account kept.
			Average quantity supplied in 24 hours, **Gallons** **4,788,003**		
Nottingham Corporation Water Works Acts, 1845, 1854, 1874, 1878, 1879, 1880.† *Capital Cost of Works.* Share Capital,‡ 7 % Annuities, £353,985 .. .. £619,500 Loans .. .. 71,833 Nottingham Consols .. .. 119,560 Total £810,893	Borough of Nottingham and 9 adjoining parishes in the county. Total area, 64⅜ sq. miles No. of Houses supplied .. 47,001 Meters .. .. 2,059 Trades .. .. 5,017 Other supplies 11,993 Total .. 66,070	The present supply is drawn from deep wells in the Bunter beds of the new red sandstone formation at Sion Hill, Basford, Bestwood Park, and Papplewick. The potential limit of these sources is 7 million gallons per day.	*Gallons.* 2,538,210§	*Gallons.* 1,495,484‖	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. .. **4,033,694** Trade.. .. .. 6.79 Domestic .. .. 11.53 Total .. .. 18.32 per head.		

† Purchase by Town Council.

‡ There was, besides, £85,178 sunk, bearing no dividends.

§ Yields aggregate revenue, £34,000

‖ " " 16,150

SOUTH STAFFORDSHIRE.—Meter hire (per annum)—	⅜"	½"	¾"	1"	1¼"	1½"	2"	3"	4"
	10/-	12/-	16/-	24/-	28/-	32/-	40/-	60/-	80/-

NOTTINGHAM.—Owners compounding for houses of £20 and under charged 5½ % with drawbacks ⅛th, and when parochial rates included in rack-rent under and at 4*s*. per week drawback increased to ¼th, and above 4*s*. to ⅓rd.

Private dwellings with retail shops exceeding £20 charged on three-fourths annual rack-rental, and if exceeding £50 then on two-thirds of the annual rack-rental.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations.)	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
441,372	522,519	£ —	£ s. d. 20,170 10 9	£ s. d. —	£ s. d. 21,602 3 3* Dividends, 13,998 4 1 Interest. £35,600 7 4	2. Scale of Water Rates— Domestic supply 7½ % per annum up to £10 annual value, 6 % up to £20, 5 % above £20, including one water-closet. 3. Scale of charges by Meter (quarterly consumption)— Any quantity not exceeding £ s. d. 21,000 gallons .. .. .. 1 4 6·p.qr. A quantity not exceeding Per 1,000 240,000 gallons .. .. .. 1/2 A quantity not exceeding 480,000 gallons .. .. .. 1/1 A quantity not exceeding 720,000 gallons .. .. .. 1/- A quantity not exceeding 1,200,000 gallons .. .. -/11 A quantity not exceeding 2,400,000 gallons .. .. -/10	Frank James, J.P., *Chairman.* Wm. Vawdrey, M. Inst. C.E., *Engineer.* H. Haselden, *Secretary.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 31st December, 1883, **£58,610 14 4** * Dividend 4½ % first half-year. ,, 5 % second half-year. On Ordinary Stock .. .. £467,500 Interest 5 % Pref. Stock .. 175,000 Deb. Stock, £148,363 £642,500				
139,053	219,964 (L.D. 1883)	696,000 B 91,815 Parishes	£ 16,158	£ 670 Sinking Fund	£ 29,980¶	1. None. 2. On Gross Rental— **When the rack-rent is under £10, 5½ per cent. per annum. When rack-rent does not exceed £10 .. .. .. 11/- £11, 12, 13, 14, 15, 16, 17, 18, } 1/- additional for each increased £1 annual value. 19-20.. .. .. 20/- 25 .. .. .. 25/- 50 .. .. .. 42/- 75 .. .. .. 52/- £100 and upwards, 3 % per annum. Baths (immersion) and closets respectively charged where rack-rent does not exceed £10 .. .. 4/- Exceeding £10-20 .. .. 6/- ,, 20-40 .. .. 8/- ,, 40-80 .. .. 10/- ,, 80 .. .. 12/- And each additional bath or closet at *half* these rates. ††3. Minimum charge for supply by meter 2*s.* 6*d.* per quarter. Low Level. High Level. Not exceeding 10,000 gallons .. .. .. 1,000 10*d.* 1,000 1*s.* Increasing quantities charged at diminishing rates down to and exceeding two millions .. .. .. 6*d.* 8*d.*	E. Gripper, *Chairman.* M. O. Tarbotton, M. Inst. C.E., *Engineer.* Stephen Moore, *Gen. Manager.* Saml. G. Johnson, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 25th March, 1883, **£50,150** ¶ Including 7 % Annuities.				

** The water rates in the parishes of Eastwood, Greasley, Nuttall, Papplewick, Linby, Colwick, Wollaton, Gedling, and part of Bilborough will be one-fourth more than the rates and charges indicated here, and in West Bridgeford one-third more.

†† Meter delivery per hour	50 gal.	100 gal.	400 gal.	800 gal.	1,200 gal.	3,000 gal.	6,000 gal.
Rent per quarter	1/–	1/3	2/–	3/–	4/6	8/–	16/–

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Belfast Water Acts, 1840, 1865, 1874, and 1879. *Capital Cost of Works.* £461,879 Amount redeemed by Sinking Fund to 31st October, 1883.. 43,402 Balance owing .. £418,477	Belfast 38,000 houses	Gravitation Works. Water collected from drainage areas in six large reservoirs, having a capacity of about 1,600 million gallons in all.	*Gallons.* 4½ m.g.*	*Gallons.* 3½ m.g.†	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons**.. .. .. **8,000,000** Total.. .. .. 8,000,000 * Yields see (1), (2) † „ „ (4), (3)		
Oldham Corporation Water Works Acts, 1825, 1838, 1853,‡ 1855, 1865, 1870, 1875, 1880. *Capital Cost of Works.* Cost of Purchase, 1853 .. .. £123,000 Piethorn Works, and Brushes Clough Works and Conduit—Act 1855 .. .. 155,764 Piethorn Extensions—Act 1870 97,000 Denshaw Works—Act 1875 .. 238,734 Copster Hill Service Reservoir, Water Mains, Meters, &c., &c. 125,854 £740,352 Sinking Fund paid off .. .. 154,646 Balance .. .. .. £585,706 Sinking Funds in hand .. £15,411 ‡Gas and Water Works purchased by Corporation from Company in 1853.	Oldham Chadderton Crompton Royton Failsworth Quickmere (part of) and Hamlets of Alt Edge, Lees, and Crossbank Houses supplied with water, 36,449	Strinesdale Reservoirs made by late Company are supplied with water from the River Medlock. Brushes Clough Reservoirs and Conduit were made to supplement the water collected on the Strinesdale gathering ground, source from River Beal. Piethorn Works, source River Roach. Denshaw Works, source River Tame, are just completed. Area of all gathering grounds, 4,730 acres. Capacity of all above Reservoirs—1,223,500,000 gallons.	*Gallons.* 2,800,000	*Gallons.* 1,200,000 In dry seasons quantity used for trade purposes rises to 3,000,000	*Gallons.*
			Average quantity supplied in 24 hours, **Gallons** .. .. **4,000,000** Compensation .. .. 3,000,000 7,000,000 Revenue per annum— Domestic supply, &c. .. £28,266 Trade purposes, per meter 10,256 £38,522		

BELFAST.—The maximum rating powers are—On dwelling-houses, 1*s.* 8*d.*; on buildings other than dwellings, 5*d.*

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3 Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td rowspan="2">174,412</td><td rowspan="2">207,671</td><td rowspan="2">£
—</td><td>£
6,500</td><td>£
Sinking Fund one per cent.</td><td>£
19,000</td><td rowspan="2">1. No Public Rate.
2. Domestic Rate 10<i>d.</i> per £ (1).
Buildings Rate 2½<i>d.</i> per £ (2).
Assessed upon Government Tenement Valuation. The Buildings Rate is assessed upon all buildings other than dwelling-houses.
Baths and closets included in Domestic Rate. Closets, &c., in premises assessed to Buildings Rate, charged as "special."
Trade purposes. One million gals. sold by meter. 206 meters in use (4). Other specials by agreement, 2½ m.g. (3).</td><td rowspan="2">Wm. McCammond, <i>Chairman.</i>
L. L. Macassey, Assoc. M. Inst. C.E., <i>Engineer.</i>
James N. McNeill, <i>Secretary.</i></td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 31st Oct., 1883.
(1) Domestic Rate.. .. £11,800
(2) Buildings or Fire Rate 2,600
(4) Water sold by meter 6,800
£21,200
(3) Special supplies 6,000
Total .. .. £27,200</td></tr>
<tr><td rowspan="2">82,619
B
41,372
Out-Townships
123,991</td><td rowspan="2">111,343
67,657
Out-Townships
179,000</td><td rowspan="2">523,935
286.065</td><td>£
10,233</td><td>£
7,977</td><td>£
22,555</td><td rowspan="2">1. None.
2. Domestic Rate on rack-rental—
Max. { Within Boro', 6⅔ %
Beyond do., 7⅓ %
<i>Scale—Yearly Water Rent.</i>
<table>
<tr><th rowspan="2">Gross An. Rent.</th><th colspan="2">House.</th><th colspan="2">House & Shop.</th></tr>
<tr><th>Within Boro'.
£ s. d.</th><th>Beyond Boro'.
£ s. d.</th><th>Within Boro'.
£ s. d.</th><th>Beyond Boro'.
£ s. d.</th></tr>
<tr><td>£12</td><td>0 16 0</td><td>0 18 4</td><td>0 16 0</td><td>0 18 4</td></tr>
<tr><td>25</td><td>1 11 0</td><td>1 16 0</td><td>1 10 0</td><td>1 15 0</td></tr>
<tr><td>50</td><td>2 15 0</td><td>3 5 0</td><td>2 10 8</td><td>3 0 8</td></tr>
<tr><td>75</td><td>3 18 0</td><td>4 13 0</td><td>3 3 0</td><td>3 18 0</td></tr>
<tr><td>100</td><td>5 0 0</td><td>6 0 0</td><td>3 15 8</td><td>4 15 8</td></tr>
<tr><td>150</td><td>6 15 0</td><td>8 5 0</td><td>4 4 0</td><td>5 14 0</td></tr>
<tr><td>200</td><td>8 10 0</td><td>10 10 0</td><td>4 9 0</td><td>6 9 0</td></tr>
<tr><td>300</td><td>12 0 0</td><td>15 0 0</td><td>4 19 0</td><td>7 19 0</td></tr>
</table>
Water-closets (extra). 8<i>s.</i> (Boro'); 12<i>s.</i> (beyond). W.C. for lock-up shops, offices, &c., the same. Baths, 8<i>s.</i> (Boro'); 10<i>s.</i> (beyond).
3. Sliding Scale—
Within Boro', from 1<i>s.</i> to 6<i>d.</i> per 1,000 gals.; beyond Boro', from 1<i>s.</i> 1<i>d.</i> to 7<i>d.</i> per 1,000 gals.
<table>
<tr><th></th><th>Within Boro',</th><th>Beyond Boro',</th></tr>
<tr><td>N.B.—Cottages, Weekly rent, varying from 2<i>s.</i> 1<i>d.</i> to 5<i>s.</i>, incur a yearly water rent to landlord.. ..</td><td>7<i>s.</i> 6<i>d.</i> to 17<i>s.</i> 4<i>d.</i></td><td>8<i>s.</i> 6<i>d.</i> to 20<i>s.</i></td></tr>
</table></td><td rowspan="2">Alderman John Ashton, J.P., <i>Chairman.</i>
Bateman & Hill, MM. Inst. C.E., <i>Consulting Engineers.</i>
Herbert Andrew, <i>General Superintendent.</i>
Hesketh Booth, <i>Town Clerk.</i></td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 25th March, 1883,
£41,647
Domestic supply .. £28,266
Trade purposes, by meter 10,256
Meter rents 893
Other receipts.. .. 2,232
£41,647</td></tr>
</table>

OLDHAM.—The scale per annum for lock-up shops, offices, and warehouses is as follows :—

	Upon gross annual rents—	£12	£25	£50	£75	£100	£150	£200	£300
Within Borough.	Water rent	8/-	15/-	1/5/-	1/13/4	2/1/8	2/10/-	2/15/-	3/5/-
Beyond Borough.	Do. do.	10/4	1/-/-	1/15/-	2/8/4	3/1/8	4/-/-	4/15/-	6/5/-

Statistics of Water Undertakings supplying large Manufacturing

<table>
<tr><th rowspan="2">Special Acts.
Capital Cost of Works.</th><th rowspan="2">Townships included in Water Limits.
Number of Houses supplied.</th><th rowspan="2">Description of Works and Source of Supply.</th><th colspan="3">Water supplied daily.</th></tr>
<tr><th>Domestic Supply.</th><th>Trade Purposes.</th><th>Flushing, &c.</th></tr>
<tr><td rowspan="2">Bolton Corporation Water Works Acts, 1847,* 1854, 1864, 1865, 1872, 1877, 1882.
<i>Capital Cost of Works.</i>
£ s. d.
Bolton Water Works (1847) 141,928 6 8
Extensions to 30th June, 1882 .. .. 32,140 10 6
£174,068 17 2
New Works — Sweetloves Wayoh and Entwistle Extensions and New Mains 447,218 15 11
Interest capitalised 70,453 12 9
£691,741 5 10
Less amount extinguished through Sinking Fund.. 62,623 1 7
Balance due .. £629,118 4 3
* Purchase by Town Council in 1847.</td><td rowspan="2">Bolton
Townships within water limits †
Townships supplied in bulk ‡
Houses supplied, 36,137
Meters 600
36,137</td><td rowspan="2">The water for domestic purposes is derived from three different sources, viz., Belmont, Heaton, and Entwistle Hills, and is collected in five storage and service reservoirs, with a total holding capacity of 1,000 million gallons.
The compensation water is collected from the adjacent hills into three reservoirs, with a holding capacity of 1,068 million gallons.</td><td><i>Gallons.</i>
21.98 (1)</td><td><i>Gallons.</i>
6.30 (2)</td><td><i>Gallons.</i>
Included with domestic supply.</td></tr>
<tr><td colspan="3">Average quantity supplied in 24 hours.
<i>Gallons.</i>
5,111,190
Townships supplied in bulk 355,000 (3)
5,466,190
Compensation supplied (12 hours), 36 cub. ft. per second 9,180,000
£ s. d.
(1) Revenue per annum 26,051 18 10
(2) Trade 11,556 5 6
(3) Townships supplied in bulk 3,154 7 6
Filtering, trade profits, and other receipts .. 1,881 15 3
£42,644 7 1</td></tr>
<tr><td rowspan="2">Stockton and Middlesbrough Corporations Water Act, 1876.
<i>Capital Cost of Works.</i>
25 years' purchase of maximum dividend, £18,647 .. .. .. £466,175
Higgins' award for compulsory sale and prospective value .. 213,802
Company's debts 122,979
Parliamentary and arbitration expenses 41,730
Extensions to August 1883 .. 73,203
£917,889
Paid off—
Middlesbrough £8,500
Stockton 1,250
£9,750
Works transferred in 1878.</td><td rowspan="2">Stockton-on-Tees
Middlesbrough
Thornaby
South Stockton
Dinsdale
Normanby
Middleton St. George
Ormesby
Eston
Kirkleatham
Norton
Billingham
Port Clarence
Yarm
Preston-on-Tees
Eaglescliffe
Coopen Bewley
Linthorpe
Marton
No. of Houses 27,032
Meters 420
Total .. .. 27,452</td><td rowspan="2">The Board pump their supply from the River Tees, at Tees Cottage, above Darlington</td><td><i>Gallons</i> (1)
3,183,000</td><td><i>Gallons</i> (2)
5,748,000</td><td><i>Gallons.</i>
Included in trade.</td></tr>
<tr><td colspan="3">Average quantity supplied in 24 hours during 1883,
Gallons 8,931,000
£
(1) Domestic rents 23,898
(2) Meter water .. .. 32,430</td></tr>
</table>

BOLTON.—† Farnworth, Kearsley, Astley Bridge, Clifton, Darcy Lever, Great Lever, Halliwell, Heaton, Little Hulton, Tonge, Turton, Worsley, and minor districts.

‡ Leigh, Hindley, West Houghton, and Aspull.

§ These figures do not include the townships supplied in bulk, the population of which is 56,958 inhabitants.

Cottage water rents, £3 to £10 annual value, vary within boro' (7½ %) 4*s*. 6*d*. to (6½ %) 12*s*. 8*d*.; outside limits (7½ %) 4*s*.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). — Dividends and Interest (Companies).	
82,853 Boro'	105,414 Boro'	£ 701,239§	£ 8,086 7 10	£ 3,559 2 8	£ 23,556 7 6‖	Joseph Musgrave, *Chairman*. R.H. Swindlehurst, Assoc. M. Inst. C.E., *Engineer*. R. G. Hinnell, *Town Clerk*.
51,065 Out-Townships	69,628 Out-Townships					
133,918	175,042		Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 30th June, 1883, **£42,644 7 1** The surplus profit in aid of rates amounted to £7,442 9*s*. 1*d*. ‖ Includes rent-charge to the Bolton Water Works Company, £4,500			
100,590	145,253 170,000 (1884)	659,160	£ 12,878 1 9	£ 3,921 19 3	£ 38,086 15 6	Water Board (12 Members, half chosen by each Corporation). T. Hugh Bell, *Chairman*. Jas. Mansergh, M. Inst. C.E., *Cons. Engineer*. D. D. Wilson, *Manager*. Jno. T. Belk, Mat. B. Dodds, J.P., *Clerks*.
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 13th August, 1883, **£56,547**			

1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).

1. None.
2. On gross rateable value.

Domestic Supply.

Rent.	Borough. Domestic Purposes.	Borough. Shops with Houses.	Outside Limits. Domestic Purposes.	Outside Limits. Shops with Houses.
£	£ *s*. *d*.	£ *s*. *d*.	£ *s*. *d*.	£ *s*. *d*.
11	0 15 0	0 15 0	0 15 4	0 15 4
20	1 4 0	1 4 0	1 6 0	1 5 0
25–26	1 8 0	1 5 0	1 12 4	1 8 0
50–51	2 10 0	1 13 4	2 16 0	2 11 0
75–76	3 8 0	2 5 4	4 3 4	3 8 4
99–100	4 0 0	2 13 4	5 10 0	4 10 0
Above £100,	4% & pro rata		5% & pro rata	

Lock-up Shops.	Lock-up Shops.
£11–£36 .... 12*s*.	£11–£20 .. 12*s*.
£42 & upwards { Half Rate charged Shops and Houses	£25 & upwards { Half Rate charged Shops and Houses

Baths and Closets for private use—
5*s*. each for first two.
3*s*. for each additional.

3. Trade (Meter supply)—
Within Boro', 6*d*. per 1,000 gals.
Beyond, 9*d*. ,,
Townships supplied in bulk, 6*d*.

1. Public Rate—
Stockton had £1,837 18*s*. 2*d*. left after paying all interest, redemption, &c.
Middlesbrough.—Rate equals not quite one farthing in the £.
2. On Annual Value, 7½ to 5% (within Borough).

Yearly Rent not exceeding	Within Boroughs.	Without Boroughs.
£4 £5	6*s*. 7*s*. 4*d*.	7*s*. 4*d*. 9*s*. 4*d*.
£6 £8	9*s*. 11*s*.	11*s*. 13*s*. 8*d*.
£10	13*s*. 4*d*.	16*s*. 8*d*.
£28	£1 12*s*.	£2
£52	£2 12*s*.	£3 5*s*.
£75	£3 15*s*.	£4 13*s*. 8*d*.
Above £100	5%	6¼%
Immersion Baths, and Closets, each	4*s*. 6*s*. 8*s*.	5*s*. 7*s*. 4*d*. 10*s*.
£40 and upwards	10*s*.	12*s*. 4*d*.

3. Household Meter supply—
1st, 2nd, & 3rd, 20,000 gals.
1*s*. 6*d*. 1*s*. 3*d*. 1*s*. per 1,000
Next 40,000 10*d*. ,,
,, 100,000 8*d*. ,,
,, 150,000 7*d*. ,,
350,000 per quarter.
Above 350,000, 6*d*. per 1,000 gals.
Beyond the Boroughs, 25% in addition to the above rates.

STOCKTON AND MIDDLESBROUGH.—The manufacturers' supply—by meter—presents some special features. The total meter supply amounted to 2,045,255,000 gals. Out of this quantity upwards of 1,646,282,000 gals. were sold to manufacturers at 3*d*. per 1,000 gals., furnishing £20,585 out of the whole meter supply, £32,430. The total meter supply, including borough meter consumers, works out at 3¾*d*. per 1,000 gals. The domestic consumption, £23,898, works out at 5*d*. per 1,000 gals. The entire supply, 3,190,076,600 gals., consequently furnishes an average of 4⅛*d*., yielding a revenue of £54,936 11*s*. 9*d*. There are 557 water meters fixed, of which the largest number are ¾-inch (123), 2-inch (97), ½-inch (87), ⅝-inch (75), ¼-inch (1), &c.

Minimum charge per quarter: within £1 10*s*.; without £1 17*s*. 6*d*. Meter hire in addition.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Kingston - upon - Hull Corporation Water Works Acts, 1843, 1872. *Capital Cost of Works.* £225,854	Hull 40,370 Houses 400 meters in use	The chalk formation—viz., by artesian borings. Two wells supplied by seven boreholes 15 to 20 inches in diameter, and from 250 to 410 feet deep. The pumping station is at Springhead, four miles west from Hull, and the service reservoirs are equal to 9 million gallons.	*Gallons.* *	*Gallons.* †	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. .. **6,250,000** * Revenue, per annum .. £23,000 † Ditto ditto .. 8,000 £31,000		
Dundee Water Commissioners Acts, 1869, 1871, 1872, 1874, and 1882. *Capital Cost of Works.* £ *s.* *d.* Purchase of Works .. .. 376,163 10 11 New Lintrathen ditto .. 327,904 7 0 Extensions, &c., &c. .. 47,747 2 0 Total cost £751,814 19 11 Paid off out of Sinking Fund, £3,915.	Dundee, Lochie, and Broughty Ferry §33,430 houses. (The Dundee Water Commissioners, while the Tay Bridge was in use, supplied Newport in Fifeshire with water. After the fall of the Tay Bridge the Commissioners erected pumping machinery at Wormit, and now pump for Newport, &c., 63,000 gals. of water per day.)	Gravitation Works. Loch of Lintrathen (new works), Monikie and Crombie Reservoirs (old works). Pumping Wormit Springs for the supply of 3,200 inhabitants in the village of Newport, &c., on the south side of the River Tay.	*Gallons.* 23 (Including waste)	*Gallons.* 15 (For other than Domestic Supply).	*Gallons.* 2 (Sanitary Purposes, Baths, &c.)
			Average quantity supplied in 24 hours. Dundee and District Gravitation Supply, **Gallons** .. .. .. **6,730,000** Newport, &c., pumping, 63,000 gals.		

KINGSTON-ON-HULL.—Parliamentary powers (1884) have been granted to the corporation for the supply of Cottingham with an extension of the water supply of the city from he locality of the mill-dam springs that have been running to waste to the extent of one million gallons per diem.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
125,758	165,690	£ 652,087	£ 13,400	£ 1,159‡	£ 9,577	1. No Public Rate. 2. Domestic Rate on rental:— 5½ % under £16 5 % ,, 40 Reducing to 3½ % to £100 Baths, 10*s.* per ann. W.C.'s (domestic) no extra charge. 3. Trade (by Meter):— 6*d.* to 9*d.* per 1,000 gals.	S. Woodhouse, *Chairman.* David Maxwell, *Engineer.* C. S. Todd, *Town Clerk.*
	168,902 (1884)		Gross amount of Water Rates and Rents (includedi n items 1, 2, and 3) for the year ending 25th March, 1883, **£81,000**				
			‡ There is in addition an annual payment of £2,600 paid to Borough Fund in perpetuity. The balance of £5,000 paid to Reserve Fund for extension of works.				
121,975 B 9,025 Other Districts	150,329 B 16,671 Other Districts	667,200 (1) 276,666 (2)	£ 4,332 3,030 (Taxes)	£ 2,583 —	£ 14,315 (Annuities) 17,065 (Interest)	1. Public Rate one penny per £ on valued rental of all property within compulsory limits of supply. 2. 1883-84, Domestic Rate reduced to 1*s.* 3*d.* per £ on rental of all dwelling-houses. 3. Sevenpence per 1,000 gals.	The Dundee Water Commissioners. Provost Moncur, *Chairman.* James Watson, Assoc.M.Inst.C.E., *Engineer.* William Hay, *Town Clerk.*
131,000	167,000		Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 15th May, 1883, **£45,288 1 6**				
			1. Public Rate .. .. £2,780 2. 1882-83, Domestic ditto, 1/6 in the £ .. .. 20,750 3. Special Rates and Meter Rents .. .. 21,758 Total .. £45,288			NOTE.—(1) Public Rate on owners. (2) Domestic Rate on occupiers.	

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§ The number of houses is taken from the Census Tables of 1881, with corresponding addition for increase of population, as computed by the Registrar-General and includes houses of "one room" and upwards if occupied by separate families.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Wolverhampton Corporation Water Works Act, 1868.* *Capital Cost of Works.* £ s. d. Cost of Works (1868) ∴ £210,327 10 0 Extensions, Dec. 1882.. 33,305 11 10 £243,633 1 10 *Purchase by Town Council.	Wolverhampton Bilston Willenhall Wednesfield Coseley Heath Town Short Heath Tettenhall Bushbury 19,615	The supply is drawn from 15⅛ and 7 inch artesian boreholes at Cosford, sunk 918 feet and 300 feet deep in the new red sandstone, and supplemented by water pumped from the River Worf, a tributary of the Severn, and by wells at Goldthorn Hill and Tettenhall. The water is collected in an impounding reservoir, containing 10 million gallons, at Tettenhall.	19	—	—
			Average quantity supplied in 24 hours, **Gallons** **2,500,135**		
			Gallons.	*Gallons.*	*Gallons.*
Weardale and Shildon District (Durham) WaterWorks Company Acts, 1866, 1875, 1879. *Capital Cost of Works.* £ Cost of Original Works (1866), Waskerley and Tunstall Extensions, with Int. £34,024 } 552,959 Durham Water Works 40,000 £592,959	The mining districts of South Durham Shildon East Thickley Spennymoor Tow Law Durham (1879) No. of Houses 24,042 Meters .. .. 333 Total .. 24,375	The water from the moorlands is collected in two reservoirs, the Waskerley and Tunstall. The storage is about 970 million gals. There are eleven service reservoirs, capable of containing 18 million, and 173 mileage of mains. The works authorised by Parliament are designed for an ultimate supply of 50 gals. per head to a population of 200,000. Twenty gals. for domestic supply, and thirty gals. for trade purposes ∵ 10 million per diem. The works constructed are able to supply 3 millions, independent of compensation.	860,000	1,055,000	Estimated 50,000
			Average quantity supplied in 24 hours, **Gallons** .. .. **1,965,000** Compensation .. 1,250,000 Total 3,215,000		

WOLVERHAMPTON.—The total quantity of water consumed in the whole district during the year between 30th Sept., 1882, and 30th Sept., 1883, has been 912,549,400 gallons, showing an increase of 70,496,798 gallons as compared with last year. This quantity shows a daily average of 2,500,135 gallons. The township of Bilston consumed 99,102,060 gallons, or a daily average of 271,512, being 51,512 gallons per day over the minimum quantity contracted for.

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="3">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="3">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="3">Governing Body in charge of Works.</th></tr>
<tr><th rowspan="2">Census, 1871</th><th rowspan="2">Census, 1881.</th><th rowspan="2">Working Expenses per annum.</th><th rowspan="2">Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).</th></tr>
<tr><th>Dividends and Interest (Companies).</th></tr>
<tr><td></td><td></td><td>£</td><td>£ s. d.</td><td>£</td><td>£ s. d.</td><td rowspan="2">1. None.
2. On Poor Rate Assessment.
<table><tr><th>Poor Rate Assess. Boro'.</th><th colspan="3">Dwelling-Houses.</th><th colspan="3">Dwelling-House and Shop.</th><th colspan="3">Lock-up Ware-houses.</th></tr><tr><td>£</td><td>£</td><td>s.</td><td>d.</td><td>£</td><td>s.</td><td>d.</td><td>£</td><td>s.</td><td>d.</td></tr><tr><td>8</td><td>0</td><td>10</td><td>0</td><td>0</td><td>10</td><td>0</td><td>0</td><td>5</td><td>0</td></tr><tr><td>10</td><td>0</td><td>13</td><td>0</td><td>0</td><td>13</td><td>0</td><td>0</td><td>6</td><td>6</td></tr><tr><td>20</td><td>1</td><td>5</td><td>0</td><td>1</td><td>5</td><td>0</td><td>0</td><td>12</td><td>6</td></tr><tr><td>39— 40</td><td>2</td><td>10</td><td>0</td><td>2</td><td>18</td><td>0</td><td>1</td><td>5</td><td>0</td></tr><tr><td>49— 50</td><td>3</td><td>2</td><td>0</td><td>3</td><td>8</td><td>0</td><td>1</td><td>11</td><td>0</td></tr><tr><td>74— 76</td><td>4</td><td>14</td><td>0</td><td>4</td><td>4</td><td>0</td><td>2</td><td>7</td><td>0</td></tr><tr><td>100—102</td><td>6</td><td>8</td><td>0</td><td>5</td><td>4</td><td>0</td><td>3</td><td>4</td><td>0</td></tr><tr><td>148—150</td><td>9</td><td>0</td><td>0</td><td>6</td><td>0</td><td>0</td><td>4</td><td>10</td><td>0</td></tr></table>Baths (no mention) and closets each 10s. per annum.
Out of the Boro', 7 per cent. per an. on the rental.
3. Trade purposes (by meter), 1s. 4d. (15,000 gallons per quarter), reducing to 6d. beyond 300,000 gals.
N.B.—Includes rent and repairs of meters, minimum rate £1 per quarter.</td><td rowspan="2">Joseph G. Wright, *Chairman.*
Lyons Wright, *Engineer.*
Horatio Brevitt, *Town Clerk.*</td></tr>
<tr><td>145,798</td><td>154,753</td><td>416,809</td><td colspan="3">9,519 11 5 — 9,257 16 8†
Gross amount of Water Rates and Rents for the year ending 30th Dec., 1882,
£20,741 4 11
† Includes Annuities on Original Capital.
∵ Pref. Share Capital 5% on £24,415 .... Ordinary Share Capital 4% on £100,000 .. } £5,096 6s.
Balance of profit, £1,963 16s. 10d., out of which a contribution of £400 has been made to the Finance Committee.</td></tr>
<tr><td></td><td></td><td></td><td>£ s. d.</td><td>£</td><td>£ s. d.</td><td rowspan="2">2. Domestic supply 7½% per annum on annual rack-rent or value. Baths and closets extra.
3. Trade purposes (by meter)—Graduated scale from 2s. to 7d. per thousand gals.
Meter hire { ½" ¾" 1" 1½" / 5/3, 6/9, 8/4, 12/6 } quarterly.</td><td rowspan="2">David Dale, *Chairman.*
T. & C. Hawksley, MM.Inst.C.E., *Consulting Engineers.*
Robert Askwith, Mem.Inst.C.E., *Res. Engineer.*
William Harding, *Secretary.*</td></tr>
<tr><td>98,966</td><td>150,000</td><td>444,623</td><td colspan="3">4,968 13 2 — 17,110 13 0‡ Dividends 5,630 1 3 £22,740 14 3
Gross amount of Water Rates and Rents for the year ending 31st Dec., 1883.
£27,261 0 2
‡ Dividend 3½ and 4 % on £457,555
Calls prepaid 42,009
Total .. £499,564
Mortgages .. £102,005</td></tr>
</table>

Mr. Lyons Wright, the engineer to the Wolverhampton Water Works, furnishes the water committee annually with some very instructive data of the progress of the undertaking. Amongst these is stated that the percentage of working expenses to gross receipts is 44.4 per cent. The consumption of coal by the pumping engines is 7,989 tons, and at the rate of 4 tons 18 cwt. 2 qrs. per million; since the bulk of the water has to be pumped *twice*—viz., from Cosford to Tettenhall, and from Tettenhall to Goldthorn Hill, while the consumption of coal to the 850 millions distributed, is in the proportion of 9 tons 7 cwt. 3 qrs. per million. The gross cost of each million distributed is £22 0s. 9d.; in which coals represent £3 10s. 11d., engine expenses £3 4s. 3d., interest £11 4s. 5d., and general expenses £4 1s. 2d. For the municipal borough of Wolverhampton there are 15,700 houses, of which 13,300 are supplied from the corporation works.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily. Domestic Supply.	 Trade Purposes.	 Flushing, &c.
Leicester Corporation Water Works Acts, 1847, 1851, 1866, 1875, 1878.* *Capital Cost of Works.* Sh. Capital 7% = £230,000 } 4% Deb.Stock £402,500 Ditto, Company's .. 49,934 Terminable Debentures 9,750 Extension, &c. 9,179 £471,363 *Purchase by Town Council.	Leicester Belgrave No. Houses .. 29,315 Meters .. .. 600 Total .. 29,915	The source of supply is the surface drainage of two watersheds on Charnwood Forest. One storage reservoir is at Thornton, the other at Bradgate. The supply is filtered at both points; part gravitates to the town, the remainder at Bradgate is pumped.	*Gallons.* 1,905,475†	*Gallons.* 976,450‡	*Gallons.* 118,075§
			Average quantity supplied in 24 hours, **Gallons .. .. 3,000,000** †Yields aggregate revenue .. .. .. £12,881 15s. 1d. ‡Do. do. 3,250 18 11 §507 11 2 £16,640 5 2 For ½ year ending 30th June, 1883.		
Halifax Corporation Water Works Acts, 1848‖ 1853, 1858, 1865, 1868, 1876. *Capital Cost of Works.* £ s. d. Old Works .. .. 28,686 5 4 (1) Ogden and Mixenden (2) Luddenden (3) Widdop Reservoirs, &c. .. 479,033 5 5 Mains, Services and Meters 92,607 4 6 Baths .. .. 6,839 7 8 Interest on non-productive Works .. .. ¶40,000 0 0 Total Cost of Works .. £647,156 2 11 Paid off, Sinking Funds 15,657 7 4 Balance .. .. .. £631,508 15 7 ‖ Purchase by Town Council. ¶£40,000 redeemable in 15 years. The balance in 100 years.	Halifax Supplied in bulk to Local Boards** Houses 17,400	The tributaries of the Calder furnish the chief source of supply. The Hebble Stream in connection with the Ogden and Mixenden storage reservoirs can contribute 1,468,000 gals. per diem for town supply, with statutory compensation, 990,000 gals. The second source is the Luddenden Valley system, collecting 1,274,150 gals., and 1,440,000 for compensation daily. The third is the Widdop and Greave gathering grounds, 2,230 acres, that can furnish 2¾ millions and 1,620,000 gals. compensation. Adding half a million for streams intercepted in the Luddenden Valleys, the lowest available town supply is 5¾ millions and 4,050,000 gals. for compensation. The whole available town supply is conveyed through a common centre, the Ramsden Wood Reservoir, by tunnels and conduits to the Albert and Victoria Service Reservoirs, which supply the town and district.	*Gallons.* 1,117,500 (1)	*Gallons.* 1,027,021 (2)	*Gallons.* —
			Average quantity supplied in 24 hours, *Gals.* Borough .. .. 2,144,521 Supplied in bulk to Local Boards .. .. .. (3) 926,041 **3,070,562** Compensation 4,050,000 7,120,562		

LEICESTER.—*Meter hire per annum*—

Delivery per hour (gallons).	100	200	400	600	800	1,000	2,000	3,000	4,000	6,000
	6/-	8/-	12/-	16/-	20/-	24/-	32/-	40/-	56/-	72/-

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<table>
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2. Scale of Water Rates or Rents (Domestic Supply).
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<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td>97,132</td><td>146,575</td><td>£
450,000</td><td>£
7,600</td><td>£
—</td><td>£
19,400 Interest
1,940 Annuities
£21,340</td><td rowspan="2">1. None.
2. On annual value, max. 6¼%, min. 4½%
<table>
<tr><th colspan="2">Annual Value. — Dwelling-Houses, per Annum.</th><th>Old Scale. — Rent.</th><th>Revised Scale. — An. Value.</th></tr>
<tr><td>When annual value amounts to £</td><td>and does not amount to £</td><td>£ s. d.</td><td>£ s. £ s.</td></tr>
<tr><td>4</td><td>5</td><td>0 5 0</td><td>0 5</td></tr>
<tr><td>9</td><td>10</td><td>0 10 0</td><td>0 11</td></tr>
<tr><td>23</td><td>26</td><td>1 4 0</td><td>1 5—1 7</td></tr>
<tr><td>47</td><td>50</td><td>2 0 0</td><td>2 7—2 9</td></tr>
<tr><td>74</td><td>77</td><td>2 18 0</td><td>£3 12s. 0d.</td></tr>
<tr><td>96</td><td>100</td><td>3 10 0</td><td>4 6—4 9</td></tr>
<tr><td>196</td><td>200</td><td>6 0 0</td><td>8 16—8 19</td></tr>
<tr><td></td><td></td><td>3% beyond</td><td>4½% beyond</td></tr>
</table>
Dwelling-houses with retail shops, from £16—£40, on three-fourths of annual value. Beyond £40, on two-thirds annual value.
Baths (50 gals.), annual value not exceeding £10, 4s.; not exceeding £10—£20, 6s.; beyond, 8s. Water-closets, not exceeding £10, 4s.; beyond £10, 6s. Each additional bath and closet at half these rates. Warehouses, on one-fourth annual value.
3. Meter supply (trade), min. 2s. 8d. per quarter.
First 1,000 gals. at 1s., decreasing gradually to 6d. per 1,000 at 1 million gals. and continuing to diminish to 5d. at 6 millions per quarter.</td><td>Ald. W. Barfoot, J.P., <i>Chairman.</i>
Thos. Hawksley, M.Inst.C.E., <i>Cons. Engineer.</i>
F. Griffiths, Assoc.M.Inst.C.E., <i>Engineer.</i>
Jno. Storey, <i>Town Clerk.</i></td></tr>
<tr><td colspan="6">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending December 31st, 1883,
£33,000
There is a surplus profit of about £4,000 on this account.</td><td></td></tr>
<tr><td>65,510
52,688
118,198</td><td>74,500 B.
L.B. 66,712
141,212</td><td>283,083</td><td>£ s. d.
9,640 1 4</td><td>£ s. d.
2,442 1 0</td><td>£ s. d.
27,081 15 7</td><td rowspan="2">1. No actual rate, but the amount transferred from Boro' Fund Account in aid of Water Works Revenue = £5,628 19s. 9d.††
2. On Rack-rents 6¼%—4%
<table>
<tr><th></th><th>Dwellings.</th><th>Houses and Shops.</th></tr>
<tr><td></td><td>£ s. d.</td><td></td></tr>
<tr><td>Under £5 .. .. ..</td><td>0 6 6</td><td></td></tr>
<tr><td>" 10 .. .. ..</td><td>0 13 0</td><td></td></tr>
<tr><td>£15—£20 .. .. ..</td><td>1 0 0</td><td></td></tr>
<tr><td>£40—£50 .. .. ..</td><td>2 0 0</td><td></td></tr>
<tr><td>£75 .. ..</td><td>3 0 0</td><td></td></tr>
<tr><td>From £100 .. ..</td><td>4%</td><td></td></tr>
</table>
Closets and baths, 5s. and 7s. 6d., and for each additional, 5s.
3. Trade purposes (by meter), 10d., 9½d., 9d., and 7d. 1,000 gals.
Local Boards, 6d. and 7d. 1,000 gals.</td><td rowspan="2">T. Wayman, <i>Chairman.</i>
J. F. Bateman, M.Inst.C.E., <i>Cons. Engineer.</i>
Jas. A. Paskin, M.Inst.C.E., <i>Engineer.</i>
Keighley Walton, <i>Town Clerk.</i></td></tr>
<tr><td colspan="2">Revenue, £ s. d.
Domestic 13,956 15 0
Trade (by meter) .. 11,037 1 1
Lcl.Boards .. 8,039 5 6
Baths, Fittings .. 2,296 13 6</td><td>£ s. d.
35,329 15 1</td><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 31st December, 1882,
£ s. d.
35,329 15 1
Less Discount 1,200 0 0
£34,129 15 1</td></tr>
</table>

HALIFAX.—**The local boards supplied in bulk include—Sowerby Bridge, Elland, Brighouse, Greetland, Hipperholme, Rastrick Water Company, Savile Estates, Hebden Bridge and Clifton Water Company.

††The amount transferred from borough fund accounts in aid of water works revenue, from September 1856 to 31st December, 1882, amounts to £78,074 4s. 0½d.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Brighton Corporation Water Works Acts, 1872,* 1883. *Capital Cost of Works.* £ s. d. Cost of Brighton Water Works .. .. 321,156 11 8 Extensions, Cost of Act, &c. .. .. 71,635 19 7 Mortgage from Company 27,000 0 0 Purchase of West Brighton Water Works .. .. 12,798 17 4 £432,591 8 7† *Purchased by Town Council.	Brighton Hove Rottingdean West Preston Houses .. 24,000 Meters .. 287 Total .. 24,287	The supply is pumped from wells and adits bored in the chalk strata. The reservoirs, seven in number, furnish storage for 6,300,000 gallons. There are two distinct series of works, each consisting of a pumping station and of three zones of supply mains and pipes fed from three reservoirs at different levels.	[Unable Average quantity supplied in 24 hours, **Gallons 4,500,000**	to furnish	this.]
			Gallons.	*Gallons.*	*Gallons.*
Ashton-under-Lyne, Stalybridge, and Dukinfield (District) Water Works Acts, 1870, 1875. *Capital Cost of Works.* £ s. d. Value of original Works per Award (1880) .. .. 332,159 0 0 Costs .. .. 22,397 2 4 Greenfield Extensions .. 286,000 0 0 Total Cost £640,556 2 4	Ashton-under-Lyne‡ Stalybridge Dukinfield Mossley Hurst § Audenshaw Saddleworth Houses .. 25,000 Meters .. 576	The original works at Knotthill and Swineshaw, transferred to the Joint Committee, drew their supply from a drainage area on the millstone grit formation and the Swineshaw Brook. They are now supplemented by the new Greenfield Scheme.	Cannot be given. Average quantity supplied in 24 hours, **Gallons .. .. 3,000,000** and Compensation.	Cannot be given.	—

BRIGHTON.—† The total sum taken up under borrowing powers at this date (31st December, 1883) was £470,000, and as the sum of £9,128 0*s.* 2*d.* (sinking fund) has been paid off, the balance actually due 31st December, 1883, was £460,871 19*s.* 10*d.*

ASHTON-UNDER-LYNE.—‡ The proportional amount of original capital applicable to Ashton on the 25th March, 1883, was £127,450. The contributions of the corporation towards the costs and Greenfield Extensions, £135,833. The total capital attributable to the Ashton section is consequently, £263,283. Their share of the joint proceeds (£24,511 19*s.* 10*d.*), amounting to £9,376, leaves a balance of £134 in favour of the corporation. The charge for interest, £7,063, sinking fund, £2,155, and other charges, £24, furnish a total of £9,242. They are also entitled to £29 share of farm rents.

and Residential Towns in Great Britain and Ireland.

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<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
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<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td></td><td></td><td>£</td><td>£ s. d.</td><td>£ s. d.</td><td>£ s. d.</td><td></td><td></td></tr>
<tr><td rowspan="2">107,304</td><td rowspan="2">134,954</td><td rowspan="2">768,860</td><td>13,821 8 3</td><td>1,424 19 1</td><td>18,134 9 5</td><td rowspan="2">1. None.
2. Domestic Rate, 9*d.* in the £ on rateable value, ∵ 3¾ %
Baths and Closets included.
3. Trade purposes (by meter).
1st 100,000, 1*s.*3*d.* per 1,000 gals. per ann.
2nd ,, 1*s.* ,, ,,
3rd ,, 10*d.* ,, ,,
After 300,000, 9*d.* ,, ,,
Meter hire .. ¼″ ½″ ¾″ 1″ 1¼
Per annum .. 6/- 10/- 13/- 16/- 20/-</td><td rowspan="2">H. Abbey, *Chairman.*
E. Easton, M.Inst.C.E., *Cons. Engineer.*
F. W. Hollands, *Engineer.*
F. J. Tillstone, *Town Clerk.*</td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 31st Dec., 1882, £36,498 19 10
Other revenue .. 2,344 5 4
£38,843 5 2
There has been a surplus profit of .. £5,462 8 5
Paid to Borough Fund 4,000 0 0
Carried to Contingent Account 1,462 8 5
£5,462 8 5</td></tr>
<tr><td rowspan="2">103,217
(about)</td><td rowspan="2">130,000
(about)
(1881)</td><td rowspan="2">508,665
(Gross)</td><td>£ s. d.
3,815 17 9</td><td colspan="2">Amount due to the Contributory Local Boards.
£ s. d.
24,511 19 10‖</td><td rowspan="2">1. *See* Foot-notes.
2. On Annual Rental or Gross Annual Value (Poor Rate)—
Dwelling-Houses. Houses & Shops.
£ £ s. d. £ s. d. ,,
Under ....6..0 10 0 0 10 0 per ann.
,, 7..0 14 0 0 14 0 ,,
Not exceeding 10..0 15 0 0 15 0 ,,
,, 20..1 15 0 1 13 8 ,,
,, 40..3 5 0 2 15 8 ,,
,, 50..4 0 0 2 19 10 ,,
,, 100..5 15 6 3 9 4 ,,
Closets, 10*s.* extra per annum.
Baths, not charged.
3. Trade purposes—
(By meter) 1/8, 1/1, & 10*d.*, 1000 gals.</td><td rowspan="2">John Wilson, (Alderman), *Chairman.*
J. F. Bateman, Geo. H. Hill, MM.Inst.C.E., *Cons. Engineers.*
W. H. Rothwell, *Secretary.*</td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883,
£28,327 17 7
‖Amount paid to Contributory Local Boards, £24,511 19*s.* 10*d.*
The Local Boards redeem and pay the interest due on their Contributions to the Joint Committee for capital purposes out of these remittances.</td></tr>
</table>

		£	s.	d.
HURST.—§	The proportional amount of original capital applicable to Hurst	22,143	18	8
	Contributions towards the Greenfield Extension Works, &c.	20,687	13	5
	Total ..	£42,831	12	1

The net income from joint board attributable to Hurst is £1,629 1 5

The interest, amounting to £1,712, and sinking fund, £428—total, £2,140—leaves a deficiency of £520 18*s.* 7*d.*, which incurs a rate in aid, at present, of about 6*d.* in the £.

N.B.—Stalybridge, Dukinfield, Mossley, &c., did not return any particulars.

Statistics of Water Undertakings supplying large Manufacturing

<table>
<tr><th rowspan="2">Special Acts.
Capital Cost of Works.</th><th rowspan="2">Townships included in Water Limits.
Number of Houses supplied.</th><th rowspan="2">Description of Works and Source of Supply.</th><th colspan="3">Water supplied daily.</th></tr>
<tr><th>Domestic Supply.</th><th>Trade Purposes.</th><th>Flushing, &c.</th></tr>
<tr><td rowspan="4">Bury Corporation Water Works Acts, 1853, 1858 (Bury & Radcliffe Company), 1853, 1856, 1858, 1864 (Haslingden & Rawtenstall Company).
1872 (Purchase by Town Council).
<i>Capital Cost of Works.</i>
Share Capital (1872)—
Bury Company, £128,975 10 % Annuities £12,959
Haslingden Company, £66,351 5¼ % Annuities 3,434
Annuities £16,393
Capitalised at 25 years £409,825
Mortgages and Loans 182,444
£592,269</td><td rowspan="4">Bury
Elton
Radcliffe
Haslingden
Rawtenstall
Newchurch
Ramsbottom
Tottington
Whitefield
Unsworth
Little Lever
Houses 25,000
Meters 750
Total .. 25,750</td><td rowspan="4">Gravitation works, drawing their supply from a watershed of 3,815 acres in area, chiefly moorland. The impounding storage is 700 million gallons. The district extends to 16 miles, and comprises 100 miles of mains.</td><td><i>Gallons.</i></td><td><i>Gallons.</i></td><td><i>Gallons.</i></td></tr>
<tr><td>2,035,000†</td><td>465,000‡</td><td>—</td></tr>
<tr><td colspan="3">Average quantity supplied in 24 hours,
Gallons 2,500,000
Add Compensation .. 2,025,000
4,525,000</td></tr>
<tr><td colspan="3"><table>
<tr><th></th><th>Bury District.</th><th>Haslingden District.</th><th></th></tr>
<tr><td></td><td>£</td><td>£</td><td>£</td></tr>
<tr><td>† Domestic Supply</td><td>£14,677</td><td>3,457 =</td><td>18,134</td></tr>
<tr><td>‡ Trade Supply</td><td>5,895</td><td>1,252 =</td><td>7,147</td></tr>
<tr><td></td><td></td><td></td><td>£25,281</td></tr>
</table></td></tr>
<tr><td rowspan="4">Huddersfield Corporation Water Works Acts, 1869§, 1871, 1876.
<i>Capital Cost of Works.</i>
£750,000
§ Acquired by Town Council in 1869 from the Commissioners of the Huddersfield Water Works upon a valuation of £58,663 14<i>s.</i> 2<i>d.</i></td><td rowspan="4">Huddersfield
Mirfield
Kirkheaton
Kirkburton
Longwood
Linthwaite
&c.
19,763
392 meters</td><td rowspan="4">The supply is from springs and gathering grounds. The new works include large reservoirs at Blackmoor Foot, at Deerhill, and the Wessenden Valley. The entire system of works is reputed to be equal to an available supply of 4 millions per diem, and 2 millions is stated to be attributable to the Blackmoor Foot Reservoir.</td><td><i>Gallons.</i></td><td><i>Gallons.</i></td><td><i>Gallons.</i></td></tr>
<tr><td>2,030,000‖</td><td>970,000 ¶</td><td>—</td></tr>
<tr><td colspan="3">Average quantity supplied in 24 hours,
Gallons 3,000,000
Compensation Wessenden Reservoir 1,687,500
Total .. .. 4,687,500</td></tr>
<tr><td colspan="3">New Scale :— £ <i>s.</i> <i>d.</i>
‖ Revenue (Estimate) .. 28,925 10 0
¶ Do. (Meter) .. 8,580 4 6
£37,505 14 6</td></tr>
</table>

BURY.—Meter hire per quarter.—⅜ in., 2/- ; ½ in., 3/- ; ¾ in., 4/- ; 1 in., 5/- ; 1½ in., 7/6 ; 2 in., 10/- ; 3 in., 15/-

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td rowspan="2">96,829</td><td rowspan="2">130,000</td><td rowspan="2">£
455,930</td><td>£
5,537</td><td>£
—</td><td>£
Annuities, 16,393
Interest, 7,614</td><td rowspan="2">1. Public Rate, 2*d.* in the £.
2. Payable by Owners, with 15 % discount.
<table>
<tr><th>Annual Rack Rental.</th><th>Water Charge.</th></tr>
<tr><td>£4 and under .. ..</td><td>6/6</td></tr>
<tr><td>Above £4, and under £10 .. . ..</td><td>1/6 in the £</td></tr>
</table>
Domestic purposes:
(Not including Baths or Closets.)
7½% to 5%
<table>
<tr><th>On Annual Value.</th><th colspan="3">Dwelling-House.</th><th colspan="3">House & Shop.</th></tr>
<tr><td>£</td><td>£</td><td>*s.*</td><td>*d.*</td><td>£</td><td>*s.*</td><td>*d.*</td></tr>
<tr><td>10</td><td>0</td><td>15</td><td>0</td><td>0</td><td>15</td><td>0</td></tr>
<tr><td>25</td><td>1</td><td>15</td><td>0</td><td>1</td><td>10</td><td>0</td></tr>
<tr><td>50</td><td>3</td><td>5</td><td>0</td><td>1</td><td>16</td><td>0</td></tr>
<tr><td>75</td><td>4</td><td>9</td><td>0</td><td>2</td><td>10</td><td>0</td></tr>
<tr><td>100</td><td>5</td><td>10</td><td>0</td><td>3</td><td>0</td><td>0</td></tr>
</table>
Above £100, 5 per cent. per annum.
Baths and Closets—
<table>
<tr><th>When Ann. Rack Rental or value does not exceed</th><th>Per Ann.</th></tr>
<tr><td>£10.. .. ..</td><td>4/-</td></tr>
<tr><td>Exceeds £10, but not £20</td><td>5/-</td></tr>
<tr><td>„ £20 „ £50</td><td>6/-</td></tr>
<tr><td>„ £50 „ £100</td><td>7/4</td></tr>
<tr><td>„ £100 .. .. ..</td><td>10/-</td></tr>
</table>
Each additional Bath or Closet, 4/-
3. Trade purposes (by Meter)—
<table>
<tr><th></th><th>Per 1,000 gals.</th></tr>
<tr><td>Not exceeding 6,000 gals., per quarter ..</td><td>2/-</td></tr>
<tr><td>Increasing quantities charged at diminishing rates down to one million .. .. ..</td><td>-/4½</td></tr>
</table></td><td rowspan="2">——— *Chairman.*
Thomas Hawksley, M. Inst. C.E., *Consulting Engineer.*
Thomas Rigby, *Manager.*
Frederick Bull, *Town Clerk.*</td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending March 31st, 1883,
£27,563
<table>
<tr><td>Water Rates and Rent ..</td><td>£25,281</td></tr>
<tr><td>Public Water Rate .. ..</td><td>1,692</td></tr>
<tr><td>Sundries .. ..</td><td>590</td></tr>
<tr><td></td><td>£27,563</td></tr>
</table></td></tr>
<tr><td rowspan="2">70,253</td><td rowspan="2">89,565 B.
28,500
118,065</td><td rowspan="2">312,430 B.</td><td>£ *s.* *d.*
11,393 11 7</td><td>£
—</td><td>£
32,513</td><td rowspan="2">1. Rate in Aid.
6*d.* in the £, now reduced to 3*d.* (1884).
£8,868 (1883).
2. Domestic Rates on Rental.
(Old Scale.)
<table>
<tr><th>Scale of Charges per Annum.</th><th colspan="3">Dwelling-Houses.</th><th colspan="4">Warehouses, Shops, & Offices.</th></tr>
<tr><td>Not exceeding</td><td>£</td><td>*s.*</td><td>*d.*</td><td></td><td>£</td><td>*s.*</td><td>*d.*</td></tr>
<tr><td>ing £4 — 5</td><td>0</td><td>7</td><td>6</td><td>£10</td><td>0</td><td>6</td><td>0</td></tr>
<tr><td>10</td><td>0</td><td>15</td><td>0</td><td>10- 20</td><td>0</td><td>8</td><td>0</td></tr>
<tr><td>20</td><td>1</td><td>10</td><td>0</td><td>20- 30</td><td>0</td><td>10</td><td>0</td></tr>
<tr><td>30</td><td>2</td><td>2</td><td>0</td><td>30- 40</td><td>0</td><td>13</td><td>4</td></tr>
<tr><td>50</td><td>3</td><td>5</td><td>0</td><td>40- 50</td><td>0</td><td>16</td><td>8</td></tr>
<tr><td>100</td><td>5</td><td>9</td><td>0</td><td>90-100</td><td>1</td><td>10</td><td>0</td></tr>
<tr><td>Beyond 110</td><td colspan="3">5%</td><td>&c.</td><td></td><td></td><td></td></tr>
</table>
Each Dwelling-House allowed one Closet; extra W.C., 5*s.* per annum; Baths, 10*s.*
3. Meter Supply (in addition to 10% on cost of meter and fixing), 6*d.* per 1,000 gallons.</td><td rowspan="2">W. Mellor, J.P., *Chairman.*
T. Hawksley, M. Inst. C.E., *Consulting Engineer.*
John Stanway, *Engineer.*
J. Batley, *Town Clerk.*</td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 31st August, 1883,
£32,322
<table>
<tr><td></td><td>£</td><td>*s.*</td><td>*d.*</td></tr>
<tr><td>Rate in Aid .. ..</td><td>8,868</td><td>0</td><td>0</td></tr>
<tr><td>Domestic Rate ..
Meter „ ..</td><td>} 32,322</td><td>0</td><td>0</td></tr>
<tr><td>Miscellaneous .. ..</td><td></td><td></td><td></td></tr>
<tr><td></td><td>£41,582</td><td>6</td><td>3</td></tr>
</table></td></tr>
</table>

HUDDERSFIELD.—There was a deficiency of £11,192 5*s.* 4*d.* on the year's working, leaving out the rate in aid. The latter has been reduced from 6*d.* to 3*d.* in the £, and the domestic rates advanced one-fifth.

N.B.—The new scale of charges sanctioned by the council in July (1883) gives an increase of about one-fifth on the rates above.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Rochdale Corporation Water Works Acts, 1847, 1866,* 1872, 1875, 1880 (P.O.) 1882 (P.O.), 1884. *Capital Cost of Works.* Purchase of Old Works (1866) 10 % An. on £74,592 .. .. £186,480 Cost of Cowm and Springmill Extensions .. .. 612,218 £798,698 * Purchase by Town Council 1866.	Rochdale Littleborough Whitworth Milnrow Wuerdle and Wardle Castleton	The chief supply is from the Cowm Reservoir. The Cowm and Spring Mill Extensions (1866) will be shortly completed. Three old reservoirs of the Company are still in use, yielding half a million per diem. The Cowm Reservoir furnishes 829,000 gals. per diem, and the Spring Mill Reservoir will add 485,000 gals. thereto. The supply is between 12 and 15 gals. per head of population.	— Average quantity supplied in 24 hours, **Gallons** .. . **1,400,000** Add Compensation .. 1,000,000 2,400,000	—	—
			Gallons.	*Gallons.*	*Gallons.*
Aberdeen Police and Waterworks Acts, 1862 and 1867, and Aberdeen Corporation Act, 1881. The total sum expended on New WaterWorks Construction Account amounted at 30th Sept., 1883, to .. .. £181,916 Deduct reduction by Sinking Fund .. .. 11,312 Leaving £170,604	Aberdeen. The number of houses and tenements supplied is about 23,000. The number of meters is 283. NOTE.—One house may contain several tenements occupied by separate families.	The water is drawn from the River Dee, a distance of 22 miles from the city. At the intake there are reservoirs and filters with a capacity of 13½ millions, and the service reservoirs near the city will hold 6¾ million gals.	— Average quantity supplied in 24 hours, **Gallons** **5,000,000**	—	—

ROCHDALE.—These particulars have been chiefly abstracted from the Parliamentary proceedings (1884), the Rochdale authorities having furnished no returns.

N.B.—The rates are the same for the townships as the borough.

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td></td><td></td><td>£</td><td>£</td><td>£</td><td>£</td><td rowspan="4">1. Borough Rate, 2s. 3d. in the £.
Transfer from Boro' Fund, £15,000.
2. On Annual Rack Rent—
1866 .. .. 7½ per cent.
1875 .. .. 10 ,,
1884 .. .. 12½ ,,</td><td rowspan="4">W. T. Shawcross, J.P., *Chairman.*
T. & C. Hawksley, MM. Inst. C.E., *Engineers.*
Henry Rofe, *Manager.*
Z. Mellor, *Town Clerk.*</td></tr>
<tr><td>63,485</td><td>68,866</td><td>237,296</td><td>—</td><td>—†</td><td>—</td></tr>
<tr><td>33,197 Out-Townships.</td><td>37,968</td><td></td><td colspan="3" rowspan="2">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending March 25th, 1883,
£21,615 10 10
£ s. d.
Water Rents, &c. (Boro') 17,761 5 6
Do. (Out-Townships) .. 3,854 5 4
£21,615 10 10
Total deficiency on working, £8,156 8s. 9d.
† Redemption comes into operation in 1885, at about 1/100 of debt.</td></tr>
<tr><td>96,682</td><td>106,834</td><td></td></tr>
<tr><td></td><td></td><td></td><td>£ s. d.</td><td>£ s. d.</td><td>£ s. d.</td><td></td><td></td></tr>
<tr><td>88,125</td><td>109,237
(1884)</td><td>455,519
Burgh (exclusive of Railways, Water Works, and Tramways).</td><td>3,598 15 9</td><td>2,381 16 0</td><td>7,022 11 11</td><td rowspan="2">1. Public Rate, 1½d. in the £ on shops and all premises other than dwelling-houses.‡
2. Water Rate on dwelling-houses, 6d. in the £.
Shops (Dry Goods), Offices, Workshops, Factories, and Warehouses.
Rent. — Per Ann. £ s. d.
Not exceeding £15 — 0 2 6
Above £15, not exceeding 20 — 0 3 4
Above 50, not exceeding 60 — 0 10 0
Above 70, not exceeding 80 — 0 13 4
Above 90, not exceeding 100 — 0 16 8
Above 100, not exceeding 120 — 1 0 0
Above 200 .. .. .. — 2 0 0
Baths and Closets, free.
3. Trade (by meter)—
First 500,000 gallons, 8d. per 1,000.
Next million ,, 7d. ,,
,, 2 million ,, 6d. ,,
,, quantity (any), 5d. ,,</td><td rowspan="2">James Paterson (Bailie), *Convener of Water Committee.*
W. Boulton, Assoc. M. Inst. C.E., *Engineer.*
William Gordon, *Town Clerk.*</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Revenue of Water Account for the year ending 30th September, 1883,
£13,977 0 6</td></tr>
</table>

ABERDEEN.—‡ The public rate for water supply has been abolished only in so far as regards the "domestic rate," with which it was combined. There is still a public rate of 1½d. in the £ levied on shops and all other premises. This rate is charged whether a supply is taken or not, and a special charge as shown above is for actual supply.

Meter hire per annum.—⅜ in., 6/-; ½ in., 10/-; ¾ in., 12/-; 1 in., 15/-; 1½ in, 25/-; 2 in., 40/-; 3 in., 50/-

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Blackburn Corporation Water Works Acts, 1845, 1849, 1861, 1875,* 1877. *Capital Cost of Works.* £ 9½% An. on £144,285 = ... 321,694 Loans .. .. 20,219 Extension of old Works .. .. 15,224 High Level Service .. .. .. 10,632 New Works (1877) .. 255,000 Total .. .. 622,769 Paid off .. .. 6,160 £616.609 * Purchased by Town Council.	Blackburn Lower Darwen Little Harwood Livesey Witton Houses .. .. 21,573 Meters .. .. 370 Total.. 21,943	Gravitation works reservoirs at Pickup Bank, Guide, &c., and new works authorised (1877) in the Whitendale Valley, which have recently been completed at an outlay of £255,000.	*Gallons.* 1,725,000 (1)	*Gallons.* 500,000 (2)	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. **2,250,000** Add compensation .. 1,350,000 Total .. .. 3,600,000 (1) Aggregate Revenue per annum .. .. .. £ 15,780 (2) Ditto, ditto 7,500		
Preston Corporation Water Works Act, 1853,‡ 1869. *Capital Cost of Works.* £ s. d. Original Works .. .. 135,225 0 0 New Works and Extensions 121,878 14 1 Langden and Hareden Scheme, 1869.. .. .. 74,902 14 4 Total .. 332,006 8 5 Sinking Fund under Act of 1869 .. .. 9,409 1 8 Balance owing .. £322,597 6 9 ‡ Purchased by Town Council.	Preston Ashton Ribbleton Grimsargh-with-Brockholes Houses .. .. 22,421 Meters 260 22,681	Gravitation works supplied from a drainage area of 3,000 acres, near Longridge, six miles from Preston. The principal supply is, however, obtained from the Langden and Hareden Brooks, 14 miles from Longridge, tributaries of the Hodder in Yorkshire, the same diverted and collected into the Longridge Reservoirs. The latter are capable of impounding 272 million gallons.	*Gallons.* 2,000,000§	*Gallons.* 1,000,000‖	*Gallons.* 100,000
			Average quantity supplied in 24 hours, **Gallons** .. .. **3,100,000** £ s. d. § Revenue .. .. 11,650 1 8 ‖ Ditto 5,066 12 8		

PRESTON.—Meter hire per annum :—

⅜"	½"	1"	2"	3"
10|-	14/-	£1	£2	£3

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td rowspan="2">93,371</td><td rowspan="2">105,000</td><td rowspan="2">£
330,000</td><td>£
4,300</td><td>£
1,500</td><td>£
23,754†</td><td rowspan="2">1. None.
But £6,740 13s. 3d., the amount required to balance the revenue account, is to be charged to capital. From March 24th, 1883, a rate of 6d. in the £ on the General District Rates will be levied.

2. Domestic rate "on annual rateable value at which the premises shall be assessed to the Poor's Rate," provided that the Corporation may adopt the gross estimated rental value instead of the annual rateable value. The annual rateable value is at present adopted with a uniform rate of 8%
Baths and closets included. 6s. for closet and 10s. for bath per annum, if more than one each.

3. Trade purposes (by meter).
N.B. No supply for a less sum than 10s. per quarter. 2s. per 1,000 gals. to 5,000 gals., down to 6d. beyond one million gals. per quarter.
No meters rented. Sold only.</td><td rowspan="2">Adam Dugdale, *Chairman.*
W. Taylor, *Vice-Chairman.*
W. B. Bryan, M.Inst.C.E., *Cons. Engineer.*
Joseph Wilson, *Manager.*
W. E. L. Gaine, *Town Clerk.*</td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883,

£23,280

†Including annuities, £12,586.</td></tr>
<tr><td rowspan="2">85,427</td><td rowspan="2">100,000</td><td rowspan="2">304,670</td><td>£ s. d.
2,743 5 4</td><td>£ s. d.
2,352 5 5</td><td>£ s. d.
11,584 5 10</td><td rowspan="2">1. None.

2. On Rateable Value.
<table>
<tr><th>Scale of Rateable Value.</th><th>Dwelling-House.</th><th>Shops with Dwelling-House.</th><th>Lock-up Shop with Office.</th></tr>
<tr><td colspan="4">Where the rateable value is *below* £10, 1s. 2d. in the £; disct. 2d. allowed, occupied or not, if paid within two months.</td></tr>
<tr><td>£</td><td>£ s. d.</td><td>£ s. d.</td><td>£ s. d.</td></tr>
<tr><td>10</td><td>0 11 8</td><td>0 11 8</td><td>0 5 10</td></tr>
<tr><td>15</td><td>0 15 10</td><td>0 14 2</td><td>0 7 1</td></tr>
<tr><td>20</td><td>1 0 0</td><td>0 16 8</td><td>0 8 4</td></tr>
<tr><td>25</td><td>1 4 2</td><td>0 19 0</td><td>0 9 6</td></tr>
<tr><td>50</td><td>2 5 0</td><td>1 10 9</td><td>0 15 4</td></tr>
<tr><td>75</td><td>3 0 10</td><td>1 16 0</td><td>0 18 0</td></tr>
<tr><td>100</td><td>3 7 1</td><td>1 18 3</td><td>0 19 1</td></tr>
<tr><td>200</td><td>3 7 1</td><td>2 0 0</td><td>1 0 0</td></tr>
</table>
No extra charge for baths or closets.

3. Trade purposes (by meter), not exceeding 1,000 gals., 5s. per quarter.
Beyond this the excess per quarter is charged per 1,000 gals. within increasing limits at the reduced rates of
1s., 9d., 6d., 5½d., 5d., 4½d.
(excess beyond 750,000 gals. per qr.)</td><td rowspan="2">Alderman James Hibbert, *Chairman.*
Hudson Reah, C.E., *Engineer.*
Henry Hamer, *Town Clerk.*</td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending April 30th, 1883,

£18,488 14 6
<table>
<tr><th></th><th>£</th><th>s.</th><th>d.</th></tr>
<tr><td>Domestic Rates, &c.</td><td>11,650</td><td>1</td><td>8</td></tr>
<tr><td>Sales by meter ..</td><td>5,676</td><td>9</td><td>11</td></tr>
<tr><td>Meter Rents, Fittings, &c. .. ..</td><td>1,162</td><td>2</td><td>11</td></tr>
<tr><td>Total Income..</td><td>£18,488</td><td>14</td><td>6</td></tr>
</table></td></tr>
</table>

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Cardiff (District) Corporation Water Works Acts, 1851, 1853, 1860, 1878, 1879, 1880.* *Capital Cost of Works.* £322,327 * Purchase by Town Council in 1880.	Cardiff Penarth 12,000	The principal supply is due to the Lisvane storage reservoir of 80 millions, coming from the gathering grounds and springs in the neighbourhood. The remainder is pumped at the Ely pumping station from a well and culverts on each side of the river, supplied by infiltration and the interception of springs from the higher grounds. This water is pumped to the extent of 1,100,000 gallons per day to the Cogan and Llandough reservoir, supplying Penarth and the lower districts.	*Gallons.* — Average quantity supplied in 24 hours, **Gallons** **2,200,000**	*Gallons.* —	*Gallons.* —
Derby Corporation Water Works Acts (Company's), 1848, 1868, 1873 (Corporation's), 1879,† 1882. Company paid Dividend of 6 % on Share Capital, £136,000 (1879). *Capital Cost of Works.* Cost of Works and additions (Sept. 1883) .. .. £359,628 Corporation paid a Bonus of £12,000, 10 & 7 % an. £10,720 (1880), £11,840 (1885) .. .. 308,000 Company's Debenture Debt .. 43,300 £351,300 † Purchased by the Town Council 1879.	The Borough of Derby 1. Central District 2. Litchurch District 3. Normanton 4. Littleover 5. Markheaton 6. Little Chester 16,579	Springs and filter tunnels in a water-bearing stratum of sand and gravel. Total years' pumping— 1877—593,969,678 gallons. 1878—625,478,203 ,, 1879—582,859,184 ,,	*Gallons.* 1,138,109 Inclusive of trades (by agreement) and reservoir cleaning (1) Average quantity supplied in 24 hours, **Gallons** .. .. **1,694,754** (1) Revenue, per annum .. £13,472 (2) ,, ,, .. 5,468 £18,940	*Gallons.* 556,645 By meter and for flushing (2)	*Gallons.* —

DERBY.—By the Borough Extension Act of 1877, the whole of Litchurch Township, and *portions* of Little Chester, Littleover, Markheaton, and Normanton, were added to borough. No water to signify is supplied to the other parishes.

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td rowspan="2">60,467</td><td rowspan="2">88,989
(1881)</td><td rowspan="2">£
367,130</td><td>£ s. d.
5,111 4 5</td><td>£ s. d.
—</td><td>£ s. d.
13,331 16 8</td><td rowspan="2">1. None.
2. On net annual value—
6 % on all properties under £20.
5 % above £20.
Includes baths by a recent legal decision.</td><td rowspan="2">David Jones, <i>Chairman.</i>
J. F. Bateman, M. Inst. C.E., <i>Cons. Engineer.</i>
J. A. B. Williams, M. Inst. C.E., <i>Engineer.</i>
J. L. Wheatley, <i>Town Clerk.</i></td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending Dec. 1880,
£19,359 12 8
Balance Surplus Profit..£916 11<i>s.</i> 7<i>d.</i></td></tr>
<tr><td rowspan="2">64,180</td><td rowspan="2">81,171
(1881)
87,608
(1884)</td><td rowspan="2">283,200</td><td>£ s. d.
5,122 9 5</td><td>£ s. d.
‡<i>Nil.</i></td><td>£ s. d.
13,150 7 8</td><td rowspan="2">1. No public rate is levied.
2. On "annual value"—
Cottages with rentals varying from £2 to £9 are charged from 2<i>s.</i> 8<i>d.</i> to 10<i>s.</i> per ann.
Dwelling-Houses. Per Ann.
Rent £10 11/-
Lock-up shops, warehouses, and offices charged ¼ the rate on dwelling-houses. 20 22/-
25 24/-
50 42/-
75 58/-
100 72/-
£200 and upwards, 3 %
Dwelling-houses used as retail shops, &amp;c., and exceeding £20 annual rent, will be charged on ¾ annual rent; and if exceeding £50, on ⅔ annual rent.
Compounding clause (owners'). <i>See</i> Southport.
Baths and closets— Per Ann.
Rent not exceeding £10..4/-
Exceeding £10 " " 20..6/-
" 20 " " 40..8/-
" 40 " " 80. 10/-
" 80 .. .. 12/-
Each additional, half the above rate.
3. Trade (by meter), 10<i>d.</i> to 4<i>d.</i> per 1,000 gallons.</td><td rowspan="2">Alderman H. H. Bemrose, J.P., <i>Chairman.</i>
Thos. Colthurst, <i>Borough Engineer.</i>
H. F. Gadsby, <i>Town Clerk.</i></td></tr>
<tr><td colspan="3">Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending Sept. 29th, 1883,
£18,940.
‡ The sinking fund comes into operation in 1890. Term of repayment 60 years, amount stated at £1,561.</td></tr>
</table>

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Birkenhead Corporation Water Works Acts, 1858*, 1867, 1881. *Capital Cost of Works.* Birkenhead and Claughton— Chargeable to Water Section (1858) .. .. £73,333 Less Sale of Land .. .. .. 6,724 66,609 Extension of Old Works .. 4,125 ,, No. 2 Works .. 43,462 Main and Meters .. .. .. 18,169 132,365 Paid off Sinking Fund .. .. 14,758 £117,607 Tranmere— Works and Mains .. .. .. 54,511 Land for new Pumping Station .. .. 1,302 55,813 Loans repaid .. .. 11,317 £44,496 * Purchased by Town Council, 1858 (Gas and Water Works), £220,000.	Birkenhead Claughton Tranmere 13,360	The town is exclusively supplied from wells, headings, and borings, reaching 833 feet in depth in the new red sandstone. There are three pumping stations, Spring Hill, Flaybrick Hill, and Borough Road.	1,978,995	372,059	—
			Average quantity supplied in 24 hours, **Gallons** **2,351,054**		
			Gallons.	*Gallons.*	*Gallons.*
Plymouth Corporation Water Works, 27th Eliz. A.D. 1585, 1824. *Capital Cost of Works.* (Unknown). Present debt, with water property £29,450	Plymouth East Stonehouse (in bulk) 11,000	These works, originally designed by Sir Francis Drake, draw their supply from a drainage area situate on the granite hills of Dartmoor, feeding a stream which is conveyed by an open channel, or "leat," a distance of 12 miles, and delivered into reservoirs in or near Plymouth.	1,950,000	650,000	—
			Average quantity supplied in 24 hours, **Gallons** .. .. **3,750,000** Compensation .. .. *Nil.*		

PLYMOUTH.—The nature of the works leads occasionally to a restricted supply, chiefly due to deficiency of storage and the leat becoming frozen. Several schemes have been suggested to overcome these defects. Large supplies are also furnished to the Government and ancient supplies in the course of the stream.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£ s. d.	£ s. d.	£ s. d.		
45,418	56,515	283,164	12,004 10 2	1,375 1 8	6,745 2 2	1. None.	Hy. Rawcliffe, J.P., *Chairman.*
16,143	25,897	Tranmere, 100,208	Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883, **£23,258 19 0**			2. 4½ % upon assessment (uniform scale—Act 1881).	W. A. Richardson, C.E., *Engineer.*
61,562	82,412	383,372	Domestic Supply .. .. £12,837 Trade (Building) .. .. 629 Meter (Trade).. .. .. 4,923 18,389 Shipping, &c. 4,870 £23,259			3. 1*s.* per 1,000 gals. for trade purposes, 1*s.* 3*d.* per 1,000 gals. for partly domestic, subject to 10 % rebate.	Alfred Gill, *Town Clerk.*
68,758	75,509 Beyond Borough, 6,000	198,263	£ About 3,000‡	£2,188 15*s.*		1. None.	James King, J.P., *Chairman.*
	81,509		Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883, **£10,000**			2. On Rental or Annual Value— Within the Boro'. Per Ann. When the yearly rent or outlay does not exceed .. .. .. £5.. 4/- Exceeding £5 but not exceeding 10.. 8/- " 10 " 15..12/- " 20 " 25..16/- " 40 " 50..28/- " 60 " 80..36/- " 80 " —..40/- Beyond the Boro', rates 50 % more. Baths and Closets not charged for.	G. D. Bellamy, *Engineer.* J. Walter Wilson, *Town Clerk.*
			‡Surplus paid to Boro' Fund. There is no capital expenditure; everything is done out of revenue.			3. Meter supply, 2*d.* per 1,000 gals., but no charge allowed less than £1 11*s.* 6*d.* per quarter. Shipping, &c., 1*s.* 6*d.* per time. Meter rent, 10*s.* per annum, according to size.	

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Greenock Water Trust Acts, 1866,* 1869, 1875. *Capital Cost of Works.* £ s. d. Shaws Water Works cost 179,729 5 1 Gryfe Works cost .. .. 159,729 0 2 Piping in Town cost .. 23,116 9 8 Extension of L. Thom, &c. 34,100 6 10 Miscellaneous Works .. 24,002 16 6 420,677 18 3 Paid off Mortgages Sinking Fund.. .. .. .. 31,352 10 6 Balance due .. .. ..£389,325 7 9 *Purchased in 1865.	Greenock 15,680 Houses 193 Meters	Gravitation. Supplied from drainage area.	*Gallons.* 4,126,875 Domestic & trade purposes, without meter, flushing, &c.	*Gallons.* 2,361,300 By meter	*Gallons.* —
			Average quantity supplied in 24 hours, For domestic and other supplies as above. **Gallons** .. .. .. **6,488,175** Sold to mills for water power, 11,000,000.† Compensation to streams, 4,000,000.		
Swansea Corporation Water Works Acts, 1860, 1873. *Capital Cost of Works.* £ Cost of Works .. .. 291,941 Paid off Sinking Fund .. .. 49,419 Balance due £242,522	Swansea Houses .. 14,000 Meters in use 120 Total .. 14,120	The supply is drawn from the rivers Lliw and Blaenant Dhu. A reservoir embankment was constructed (by Sir Robert Rawlinson, C.B., M.Inst. C.E.) in the Lliw Valley (1863) with the puddle trench in rock, impounding upwards of 300 million gals. The Blaenant Dhu reservoir is of later construction.	*Gallons.* 2,100,000 (1)	*Gallons.* 267,216 (2)	*Gallons.* 23,074 (3) (flushing & shipping)
			Average quantity supplied in 24 hours, **Gallons** .. .. **2,390,290** Compensation .. 1,254,400 Total .. .. 3,644,690 £ (1) Revenue per annum .. 5,643 (2) Ditto .. 2,934 (3) Ditto .. 1,002 Shipping, &c.		

GREENOCK.—† Section 44 of "The Greenock and Shaws Water Transfer Act, 1866," is as follows:—The water trustees may contract with and undertake to supply with water every such person as may erect or construct mills, manufactories, bleach-fields, print-fields, or other works or machinery requiring a supply of water, along the course of the aqueducts, cuts, or runs of the trust, or near the same, and for other than domestic purposes, and that at such rent, rate, or duty for such water as may be agreed upon by and between such persons and the water trustees: Provided always, that the water trustees shall in all contracts to be entered into by them in virtue of this Act provide against the liability of the trust for damage or loss arising in consequence of a failure of supply of water by inevitable accident, or the like.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
60,000	72,621	£ 412,030	£ s. d. 7,195 6 10	£ 3,000	£ s. d. 15,964 14 2	1. Public Rate 1½*d.* per £ on actual rent, £2,049 14*s.* 11*d.* 2. Domestic Rate 8*d.* per £ on actual rent, £5,039 4*s.* 4*d.* No charge for baths or w.c.'s. 3. Meter supply‡ (pure water), 3*d.* to 5*d.* per 1,000 gals. Brown water (water power), 1*d.* to 1¼*d.* per 1,000 gals.	Edward Wilson, Provost of Greenock, *Chairman.* James Wilson, C.E., *Engineer.* Colin MacCulloch, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 26th May, 1883, **£27,247 13 5** £ s. d. Public Rate .. .. 2,049 14 11 Domestic .. .. .. 5,039 4 4 Meter supplies .. 11,938 9 6 Trade ditto .. 1,991 12 11 Water Power .. .. 4,181 9 1 Shipping .. .. .. 843 13 3 Rents, &c. 1,203 9 5 £27,247 13 5				
51,702	65,597 (1881) 70,000 (1884)	240,000	£ 3,115	£ s. d. 810 19 8§	£ 8,645	1. Deficiency provided for by the General District Rate, viz., about £1 15*s.* per cent. per annum. 2. On rental (annual value)— Dwellings not exceeding £5 per an. 6/6 Exceedg. £5 not exceedg. £7 per an., 8/6 " £7 " £10 " 10/- Above £10, 5 per cent. Offices, shops, and ware-rooms half the above charges. Baths and closets included. W.C.'s for offices and warehouses, 10*s.* per annum. 3. Meter supply— Shipping, 15*s.* per 1,000 gals. Trade, max. 1*s.* 2¾*d.* to 6*d.* per 1,000 gals.	R. D. Burnie, Mayor, *Chairman.* R. H. Wyrill, *Boro' Engineer.* T. W. Islay Young, *Treasurer.* J. Thomas, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883, **£9,579.**				

GREENOCK.—‡A fixed minimum annual charge of £3 payable quarterly will be made in every case where the water is laid down to premises with meter without regard to the quantity used.

SWANSEA.—§ The corporation has to invest annually the amount, which, with compound interest at 3½%, will repay the capital in 70 years. Any properties sold by the corporation goes to the credit of the fund, and thereby reduces the annual payment.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily. Domestic Supply.	 Trade Purposes.	 Flushing, &c.
Paisley Water Commissioners' Acts, 1854,* 1866, 1876, and 1881.	Paisley Johnstone Elderslie Linwood	The supply is derived from the gathering grounds of the Stanely and Rowbank, 1,844 acres in extent, situate on the coal measures. These gravitation works are calculated equal to a storage of 160 days. A new supply is being obtained from the water of Rye, the gathering grounds being 5,650 acres, and the reservoir is in course of construction at Camphill, near Dalry, Ayrshire.	*Gallons.* †2,224,000	*Gallons.* ‡1,700,000	*Gallons.* 83,551
Capital Cost of Works. £ s. d. Works purchased from Paisley Water Company .. 60,000 0 0 New Works at Rowbank, Glenburn, and Camphill .. 145,331 14 7 205,331 14 7 Paid off by Sinking Funds. 6,850 0 0 Balance due .. £198,481 14 7 * Purchased by Town Council 1854.	13,911		Average quantity supplied in 24 hours, **Gallons** .. .. .. **4,007,551** Add compensation .. 1,441,238 Total .. 5,448,789 £ s. d. † Yields aggregate revenue .. .. 5,093 17 3 ‡ Ditto ditto .. 10,672 1 4		
Barrow-in-Furness Corporation Water Acts, 1868, 1872.	Barrow-in-Furness Dalton-in-Furness	The supply is from gravitation works, the water is impounded in reservoirs of about 350 million gallons capacity. The gathering grounds are on the slaty formation of the Cumberland Hills. There are four service reservoirs, and the system has been lately completed by the addition of a filtering high-service reservoir.	*Gallons.* ‖900,000	*Gallons.* ¶1,000,000	*Gallons.* —
Capital Cost of Works. Cost of Water Works .. £190,478 16s. 4d.	10,597		Average quantity supplied in 24 hours, **Gallons** .. .. **1,900,000** Add for compensation .. .. .. 400,000 Total .. 2,300,000 £ s. d. ‖ Domestic supply .. 7,815 7 9 ¶ Trade purposes .. 8,596 13 2		

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
48,240	55,642 Johnstone 9,267 Elderslie & Linwood 2,534 67,443 now (1884) 69,506	£ 224,672	£ s. d. 5,512 9 5	£ s. d. 750 0 0	£ s. d. §8,906 3 11	1. Public Rate 1*d.* in the £—£955 4*s.* 8*d.* 2. Domestic Rate 10*d.* in the £ of annual value. Closets and baths in dwelling-houses included under above rates. 3. Trade purposes (by meter) 5½*d.*, 5*d.*, 4½*d.*, and 4*d.* per 1,000 gallons. Meter hire, 10 % per annum on cost.	James Clark, *Chairman.* J. & A. Leslie & Reid, MM. Inst. C.E., *Cons. Engineers.* R. Sharp, *Engineer.* David Young, Francis Martin, *Town Clerks.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 28th May, 1883, **£16,721 3 3** £ s. d. Public Rate .. .. .. 955 4 8 Water Rates .. .. .. 15,765 18 7 £16,721 3 3 § Includes annuities on account of £60,000 at £6 13*s.* 4*d.* to Shareholders of Paisley Water Company.				
47,111 (1881) 63,065 (1881)	50,000 (Borough) 66,000 (water limits)	224,000	£ s. d. 3,224 6 4	£ s. d. 2,362 0 0	£ s. d. 7,658 0 0	1. None. 2. Domestic purposes— For every house and house and shop, 5 % per annum on the Gross Poor Rate Assessment up to £50, and above that value 3½ % per annum. *** 9*d.* in the £ with the provision that no premises valued from £51 to £66 shall pay less than £2 10*s.* Lock-up shops and offices, 2½ % on Gross Poor Rate Assessment. Baths, 6*s.* Closets connected with offices, shops, &c., 5*s.* 3. Trade (by meter)— Minimum charge, £1 per quarter, exclusive of rent of meter. 1*s.* (50,000 gallons), ranging down to 3*d.* (over 50 million gallons) per 1,000 gallons.	J. T. Smith, *Chairman.* W. Fergusson, *Engineer.* C. F. Preston, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending June 30th, 1883, **£16,412 6 11** The balance of £3,168 was transferred to the Suspense Account Borough Fund.				

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
York New Water Works Company's Acts, 1846, 1876. *Capital Cost of Works.* Cost of Works £138,000	York 12,250	The supply is from the river Ouse. The water is pumped at Acomb into subsiding tanks, then filtered through beds of sand and gravel, and afterwards pumped into a high-service reservoir from which it is distributed through the district.	—	—	—
			Average quantity supplied in 24 hours, **Gallons** **2,000,000**		
			Gallons.	*Gallons.*	*Gallons.*
Burnley Corporation Water Works Acts, 1871 and 1883. *Capital Cost of Works.* Cost of Works to March £ s. d. 25th, 1883 .. .. 110,824 15 7 Repaid by Sinking Fund .. 20,948 16 0 £89,875 19 7	Burnley Habergham Eaves Houses .. 13,495 Meters .. 324 13,819	The supply is from gathering grounds and surface springs in Extwistle and Worsthorne townships, three storage reservoirs, capacity 156,000,000 gals. A fourth reservoir is now in use. About to commence extensions at Cant Clough.	1,119,210	107,907	—
			Average quantity supplied in 24 hours, **Gallons** **1,227,117**		

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£ *s.* *d.*	£	£ *s.* *d.*		
43,626	64,908	163,275	4,139 3 5	—	9,189 3 4*	2. Domestic supply on "rack rent or annual value"— Per annum. Under .. £3.. .. .. 4/– Amounting to 3 { and under } £4 10/–, 5/– " 20 " 21 .. 20/– " 25 " 26 .. 25/– " 49 " 52 .. 44/– " 61 " 62 .. 48/8 " 70 " 81 .. 56/– " 86 { & not exceeding } 100.. £3 £100 and upwards, 3 per cent. per annum. Dwelling-houses with retail shops from £24 to £30, charged 24/- Beyond £30, an allowance of 20 per cent. is made on the rate applicable to dwelling-houses. Water-closets (cottages), 5/– per annum. " dwelling-houses, £10, and not exceeding £20....7/– per annum. Above .. .. £20, 10/– " Each additional .. 5/– " Baths .. .. .. 10/– " 3. Trade purposes (quarterly) meter supply (under 15,000 gals.), 1/6 per 1,000 gals. 1/4, 1/2, 1/-, 10*d.*, 9*d.*, 8*d.*, 7*d.*, & 6*d.* (1 million and upwards). Meter hire:— ½" ¾" 1" 1/6 2/- 3/-	Jno. F. Taylor, *Chairman.* T. & C. Hawksley, MM. Inst. C.E., *Cons. Engineers.* E. Hustler, *Engineer.* John W. Watson, *Secretary.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 30th June, 1883, **£14,101 8 7** *Dividend 8% Ordinary Shares, £80,000, and 5% Preference, 1878 and 1879 Shares, £48,000. Loans, £10,000—£389 3*s.* 4*d.*				
			£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*		
44,107	64,000	148,792	2,199 19 6	1,747 8 4	3,353 4 10	1. None. 2. Domestic supply, 5 per cent. on annual value. 1 w.c. allowed. Extra water-closets, 12/- per annum each closet, or 3/- per quarter. Baths 6/- per annum to £10 annual value, and from £10 to £ 20 annual value, 8/- per annum. £20 to £30, 10/-, and above £30, 12/- each per annum. 3. Trade charges, 8*d.* per 1,000 gals.	Ald. Sutcliffe, J.P., *Chairman.* Ed. Filliter, M. Inst. C.E., *Cons. Engineer.* W. Williamson, *Engineer.* A. S. King, *Boro' Accountant.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending March 25th, 1883, **£9,125 11 2**				

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily. Domestic Supply.	 Trade Purposes.	 Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Bath Corporation Water Works Acts, 1846, 1851, 1870, P.O. 1875, P.O. 1876. *Capital Cost of Works.* Cost of Works .. .. £127,500 Paid off .. .. 53,200 Balance £74,300	City of Bath Weston Tiverton Bathampton Parts of Batheaston and Swainswick Number of houses supplied, about 9,000	Supply from springs from the oolite strata underlying upper lias, and except to about 300 houses by gravitation.	25 Average quantity supplied in 24 hours, **Gallons .. .. .. 1,400,000** No compensation water beyond supplying cattle troughs.	1	None.
			Gallons.	*Gallons.*	*Gallons.*
Southampton Corporation Water Works Acts, 1836, 1850. *Capital Cost of Works.* £ *s.* *d.* 124,434 16 9 Paid off .. .. 57,688 17 3 Balance due £66,745 19 6	Southampton 11,944	The River Itchen. The water flows by gravitation into impounding reservoir, thence into pump wells; it is then pumped into service reservoirs on Southampton Common, and gravitates into the town.	2,775,000* Average quantity supplied in 24 hours, **Gallons .. .. .. 3,000,000** * Revenue, per annum .. .. £1,450 † ,, ,, ... 2,000 £3,450	225,000†	Flushing included in domestic supply

BATH.—The charge for all supplies outside the borough is 50 per cent. additional to the above, except to Batheaston.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£	£	£		
52,535	51,835 11,121 Out-Townships 62,956	250,000	2,177 (Not including rates & taxes)	1,012	3,384	1. None. 2. On Gross Annual Value, as assessed to the Poor's Rate— When the annual rack rent of the premises shall not exceed .. £10.. Per Ann. 8/- Above £10 and not exceeding 20.. 15/- ,, 20 ,, 30.. 1/0/0 ,, 30 ,, 40.. 1/5/0 ,, 40 ,, 60..1/15/0 ,, 60 ,, 80.. 2/0/0 ,, 80 ,, 100..2/10/0 ,, 100 ,, 150.. 3/0/0 All above £150 per year ..3/10/0 Baths and Closets included. 3. Trade purposes (by Meter)— 8*d.* per 1,000 gallons. Meter hire..10*s.* per annum.	Cold-Water Committee of Town Council. J. S. Bartrum, (Alderman), J.P., *Chairman.* Alfred Mitchell, *Engineer.* John Stone, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending March 25th, 1883, **£9,363**				
			£ s. d.	£ s. d.	£ s. d.		
53,741	61,391	240,301	4,036 14 6	4,193 5 5	2,812 0 1	1. General District Rate (paid to redemption of loans, principal and interest), £7,005 5*s.* 6*d.* 2. Domestic supply 2*d.* in the £ on all properties supplied with water, baths and closets included. 3. Trade purposes by meters, at 6*d.* per 1,000 gallons.	Rolles Driver, Mayor, *Chairman.* Geo. Manwaring, *Consulting Engineer.* Wm. Matthews, Assoc. M. Inst. C.E., *Engineer.* R. S. Pearce, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 31st August, 1883, **£11,042** NOTE.—The rates made are calculated to meet the annual working charges, and the district rate supports all capital charges.				

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Northampton Water Works Company Acts, 1861, 1882. *Capital Cost of Works.* £ s. d. Cost of Works 73,961 12 7½	Northampton Hardingstone Duston Dallington Kingsthorpe 9,500	The supply chiefly derived from deep wells in the lias and oolite.	—	—	—
			Average quantity supplied in 24 hours, **Gallons** **750,000**		
			Gallons.	*Gallons.*	*Gallons.*
St. Helen's Corporation Water Works Acts, 1851, 1855, 1869, 1882. *Capital Cost of Works.* Cost of Works, Extensions, &c... £119,525 Paid off by Sinking Fund.. .. 26,786 Balance due £92,739	St. Helen's 10,800	The water is pumped from wells sunk and bored in the red sandstone, and a small catchment system yielding 130,000 gallons per day for manufacturing purposes only. New works, including two new pumping stations which Parliament has authorised; the Knowsley and Kirkby schemes are in course of progress.	982,303‡	843,162§	Included in domestic supply.
			Average quantity supplied in 24 hours, **Gallons** .. .. **1,825,466** £ s. d. ‡ Revenue .. .. .. 5,928 15 3 § Ditto 6,758 19 9		

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td>47,368</td><td>60,000</td><td>£
150,870</td><td>£ s. d.
3,042 10 6</td><td>£ s. d.
1,469 0 0*</td><td>£ s. d.
6,155 13 4†</td><td rowspan="2">2. Domestic supply on rack rent and rateable value (owners):—
Per Ann.
To be paid by the landlord whether occupied or not. { Houses at and under £6 10s., not exceeding..... 8/-
Above £6 10s. and not exceeding ....£10..10/-
Above £10 and not exceeding 15..12/-
" 20 " " 25..20/-
" 45 " " 50..44/-
" 70 " " 75..64/-
" 90 " " 100..80/-
Above £100, 4 % per annum.
Baths, closets with cisterns and closet-pans, 6/- per annum.
3. Trade purposes:—
By meter, 1/- per 1,000 gallons.
Minimum, 7/6 per quarter.</td><td rowspan="2">Fredk. Muscott, <i>Chairman.</i>
John Eunson, <i>Engineer.</i>
Henry Armitt, <i>Secretary.</i></td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 24th June, 1883,
£10,975 0 4
* Depreciation of Plant.
† Dividends and Income Tax average 10 % on £60,000. Mortgage £4,000.</td></tr>
<tr><td>45,250</td><td>59,000</td><td>221,570</td><td>£ s. d.
5,242 16 8</td><td>£ s. d.
2,460 10 8</td><td>£ s. d.
3,237 19 7
2,290 9 7*</td><td rowspan="2">1. None.
2. Domestic purposes:—
Maximum statutory limit, 7 % on the gross annual value (St. Helen's Improvement Act, 1869).
The rate is at present 4½ % on gross rental on assessment.
Closets and baths included. A charge of 2/6 per quarter is made for closets in lock-up shops and offices.
3. A uniform rate of 5½<i>d.</i> per 1,000 gallons.</td><td rowspan="2">J. McBryde, J.P., <i>Chairman.</i>
D. M. F. Gaskin, M.I.C.E.,F.G.S., <i>Engineer.</i>
Thos. Brewis, <i>Town Clerk.</i></td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 31st March, 1883,
£12,687 15 0
* Sum paid to the Collins Green Colliery Company, Limited, for Water.</td></tr>
</table>

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Cheltenham Corporation Water Acts, 1824, 1839, 1847, 1865, 1878.* *Capital Cost of Works.* £ s. d. Purchase of Company's Works 229,161 5 0 Ext. on account new Dowdeswell Valley Works .. .. 3,705 6 5 232,866 11 5 Paid off (Sinking Fund).. .. 1,732 16 4 Balance .. .. .. £231,133 15 1 *Purchased by Town Council in 1878 (10% on Company's Share Capital). The Company's expenditure stood at £127,313 16*s.* 6*d.* (1877).	Cheltenham Tewkesbury Charlton King's Leckhampton Prestbury 3,921	The supply is chiefly drawn from springs in the neighbourhood of Cheltenham at Hewletts, derived from the oolitic beds which underlie the lias here, but form the upper surface of the Cotswold, and rest on the clay. There are five service reservoirs, equal to a storage of 35 millions. There is a pumping station at Sandford Mead, where there is a well, and the supply at Tewkesbury is also pumped from the Severn.	250,000	—	—
			Average quantity supplied in 24 hours, **Gallons .. 270,000 (Springs)**		
			Gallons.	*Gallons.*	*Gallons.*
Southport Waterworks Company's Acts, 1854, 1856, 1867, 1870, 1878. 1854, £20,000 allowed 1856, 25,000 „ 1867, 50,000 „ 1870, 87,500 „ 1878, 200,000 „ Total .. 382,500 *Capital Cost of Works.* £297,816	Southport North Meols Birkdale Aughton Halsall Downholland Maghull Formby Scarisbrick 7,700 Houses	The water is pumped from the new red sandstone at Aughton and Springfield, both about 8 miles from Southport.	942,450†	400,000‡	40,000
			Average quantity supplied in 24 hours, **Gallons .. .. .. 1,382,450** £ s. d. † Revenue per annum 17,591 2 10 ‡ Ditto ditto (by meter) 4,202 4 11 £21,793 6 9		

CHELTENHAM.—New works estimated to yield 750,000 gals. per diem are in course of construction in the Valley of the Dowdeswell, and are expected to cost £84,000.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£ s. d.	£ s. d.	£ s. d.		
54,277	56,523	287,808	3,152 8 9	344 3 10	8,889 16 4	1. None. 2. Domestic supply on "gross estimated rental" 6% on all properties under £20 and 5% above that value. No closet charges. Baths 20*s.* per annum. 3. No manufacturing supply.	G. Parsonage, *Chairman.* J. F. Bateman, M. Inst. C.E., *Cons. Engineer.* W. McLandsborough, M. Inst. C.E., *Engineer.* E. T. Brydges, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 24th June, 1883, **£12,916 8 5**				
			£ s. d.	£	£ s. d.		
22,274 13,508 Out-Townships	33,763 21,535 Out-Townships	216,082 (1883) 147,405	7,003 14 5	—	10,755 16 4§ Interest 2,699 8 6 13,455 4 10	1. Does not apply. 2. On rack rent or value. Rack Rent: £3 £4 £5 £6 £7 £8 £9 Rate Per Ann.: 4/6 6/- 7/4 8/- 8/8 9/4 10/- 7½% 7⅓% 6⅔% 5¼% £10—£100, 5½ per cent. Above £100, 5% Dwelling-houses and shops, &c., exceeding £20, but not exceeding £50, will be charged on three-fourths annual rack rent, beyond £50 on two-thirds annual rack rent. Baths (immersion) and closets— Rent not exceeding £10 .. .. .. 4/- Exceeding £10, not exceeding £20.. 6/ " 20 " 40.. 8/- " 40 " 80..10/- " 80 .. ..12/- Each additional, 4/- 3. Trade (by meter).—*See below.*	Thomas Statter, *Chairman.* H. Rofe, *Engineer.* W. Harper, *Secretary.*
35,782	55,298 (1881)	363,487 (1883)	Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 31st December, 1883, £ s. d. 21,793 6 9 Less Allowances .. 1,378 14 0 Net .. .. .. **£20,414 2 9** £ §Dividend 5% on .. .. .. 196,000 Calls C. D. .. .. 29,766 225,766 Mortgages 72,050 £297,816				

SOUTHPORT.—Owners compounding for groups of houses of £10 and under (not less than three) are allowed discounts varying from one-eighth to one-fifth.

Meter supply—

Size of meter	⅜"	½"	¾"	1"	1½"	2"	2½"	3"
Rent per quarter	2/-	3/-	4/-	5/-	7/6	10/-	12/6	15/-

Minimum water rent per quarter	5/-	7/6	10/-	£1	£2	£3	£3 10/-	£4 10/-
Quantity of water that may be used	4,000	5,000	7,000	16,000	33,000	52,000	62,000	72,000

Scale 1/4 to 7*d.* Beyond 2,500,000, 6*d.* per 1,000 gallons.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Dewsbury and Heckmondwike Water Works Act, 1876.	Dewsbury & Heckmondwike, Ravensthorpe, "in bulk," the minimum being 50,000 gals. per day.	The supply is from the Don and Dearden streams impounded in storage reservoirs at Dunford Bridge.	*Gallons.* *Dewsbury only* 900,000	*Gallons.* 250,000	*Gallons.* —
	7,000		Average quantity supplied in 24 hours, **Gallons** .. .. .. **1,500,000** Compensation.. .. 2,000,000 Total 3,500,000		
Capital Cost of Works. £ s. d. Old Works.. .. .. 149,894 0 1 New Works . .. .. 61,848 9 9 £211,742 9 10 (Entire undertaking.)					
Barnsley Corporation Water Works Acts, 1854,* 1862.	Barnsley Worsborough Darton Dodworth Monk Bretton Silkstone Ardsley	The supply is from a gathering ground 1,750 acres in extent at Ingbirchworth, nine miles from Barnsley.	*Gallons.* —	*Gallons.* —	*Gallons.* —
			Average quantity supplied in 24 hours,		
Capital Cost of Works. Cost of Works .. .. £140,000 *Purchased by Town Council, 1854.	About 10,000 houses supplied.		**Gallons** .. .. .. **1,000,000** Add Compensation.. 825,000 Total 1,825,000		

MEMO.—The Dewsbury Corporation's interest in the joint works represents three-fourths and Heckmondwike Local Board's the other one-fourth, and each separate board have the management of and receive the rents for water supplied within their respective districts.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
35,985	50,000	£ 150,000	£ s. d. *Dewsbury only* 2,012 3 11* Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 31st August, 1883, £ s. d. Public Water Rates.. 4,750 13 3 Water Rents .. .. 6,623 6 11 (Dewsbury).. **£11,374 0 2** *Including a call of £900 for management by the joint board.	£ s. d. 3,627 11 8	£ s. d. 7,132 12 0	1. 1*s.* in the £, £4,750 13*s.* 3*d.* 2. On "Annual Value," as obtained from the Valuation List. Annual Value. Exceeding £ s. d. — Not exceeding £ s. d. — Water Rents. — Deduction allowed for Shops and Houses. — 5 10 0 — 8/8 5 10 0 — 8 10 0 — 10/- 8 10 0 — 10 0 0 — 12/- 15 0 0 — 20 0 0 — 18/- 20 0 0 — 25 0 0 — 20/- — 5 % 35 0 0 — 40 0 0 — 26/- — 5 % 40 0 0 — 45 0 0 — 28/- — 10 ,, 55 0 0 — 60 0 0 — 34/- — 10 ,, 60 0 0 — 70 0 0 — 38/- — 15 ,, 70 0 0 — 80 0 0 — 42/- — 15 ,, 80 0 0 — 100 0 0 — 3% — 20 ,, 100 0 0 — .. .. .. — 3% — 25 ,, For every closet (beyond one), 7/6 per annum. Bath, 10/- per annum. 3. Trade purposes (by meter), 6*d.* per 1,000 gals.	William Reynolds, *Chairman Joint Board.* T. B. Fox, *Chairman Gas and Water Committee.* Bateman & Hill, MM. Inst. C.E., *Cons. Engineers.* Trevor C. Edwards *Town Clerk.*
39,485	50,000	166,343	£ 2,400 Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883, **£9,000** NOTE.—The gross income from all sources from the Water Works Department is estimated to be for the year now current (1883), £10,500.	£ 2,800	£ 5,000	1. None. 2. Domestic supply on rental or rateable value, max. 6¼%, min. 4% Baths and w.c.'s extra; baths 10*s.* each per annum; w.c. 10*s.* each per annum for the first and 5*s.* per annum for each succeeding one. 3. Meter supply, not exceeding 10,000 gals., at 10*d.* per 1,000 gals., exceeding 2 millions at 6*d.*	Mr. Alderman Carter, *Chairman.* T. Hawksley, M. Inst. C.E., *Cons. Engineer.* Jno. Hy. Taylor, Assoc.M.Inst.C.E., *Resident Engineer and Manager.* Henry Horsfield, *Town Clerk.*

The Dewsbury and Heckmondwike Water Works Board make calls upon the respective boards to meet the payment of expenses of construction and maintenance of joint works, but receive no money for water supplied within such districts.

Statistics of Water Undertakings snpplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Merthyr Tydfil Local Board Water Works Acts, 1858 and 1865, and P.O. 1876. *Capital Cost of Works.* Borrowed for Construction of Works .. .. £151,600 Paid off by instalments .. .. 52,707 Balance £98,893	Merthyr Dowlais George Town Cefn Penydarran Troedyrhiew Merthyr Vale Treharris 10,000	The supply is drawn from the River Taff Fechan, in the county of Brecon, where the river drains about 4,000 acres of land on the old red sandstone formation. These waters are impounded in a reservoir holding 396 million gallons, and another reservoir is being made to hold 80 million gallons in connection with later works for supplying Dowlais and Treharris by gravitation.	1,268,000	68,000	—
			Average quantity supplied in 24 hours, **Gallons** .. .. **1,336,000** Compensation .. 2,000,000 Total .. 3,336,000		
			Gallons.	*Gallons.*	*Gallons.*
Wigan Local Acts of 1853, 1860, 1874, and 1880. *Capital Cost of Works.* £189,123	Wigan 10,000 houses	The supply is from a drainage area partially over the coal measures. 800,000 gallons a day provided as compensation to millowners.	Are th	not able to is informatio	give n.
			Average quantity supplied in 24 hours, **Gallons** .. .. **1,000,000** Add Compensation 800,000 Total .. 1,800,000		

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£ s. d.	£ s. d.	£ s. d.		
51,891	50,000	145,918	2,621 7 6 Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883, **£5,105 1 2**	3,635 2 0	2,090 9 4	1. Transfer from General District Rate to Water Rent Account £3,926 2 6 2. On annual rateable value— Per Week. Per Ann. Not exceeding £4....1½*d*.....6/6 £4 „ 6....1¾ ....7/7 6 „ 8....2 ....8/8 8 „ 10....2¼ ....9/9 £10 and upwards, 5 % per annum. Additional closets .. 4/- each. Private baths .. .. 5/- „ 3. Trade purposes— (By meter) 1/- to 6*d*. per 1,000 gallons. Meter hire per quarter— ⅜ in. ½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in. 2/4 3/2 4/- 5/- 6/- 7/- 9/6	George Martin, *Chairman.* T. Hawksley, M. Inst. C.E., *Cons. Engineer.* S. Harpur, Assoc.M.Inst.C.E., *Res. Engineer.* Thomas Williams, *Clerk to the Board.*
39,111	48,193 50,000 (1884)	146,000	£ 1,770 Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th May, 1883, **£9,162 1 2** * The annual instalment increases annually while the interest decreases, making a fixed annual payment.	£8,613*		1. No rate in aid. 2. Domestic rate on rateable value, max. 7½ to 6 %, minimum 3½ %— £ s. d. Under £6 .. .. 0 8 8 £10 .. .. 0 12 8 25 .. .. 1 5 0 50—54 .. .. 2 10 0 75—79 .. .. 3 5 0 100 and upwards .. 3 12 6 Closets, baths— 1st. 2nd. Beyond. Under £10 4/- — — „ 20 6/- 5/- 4/- „ 40 8/- 5/- 4/- Upwards . 10/- 7/- 5/- 3. Trade purposes— (By meter) 1/- per 1,000 gallons under 5 million gallons, above that quantity 9*d*. per 1,000 gals. Meter hire, 10 % on cost.	Henry Park, *Mayor.* Alderman Wm. Bryham, *Chairman of Water Committee.* William Bolton, *Engineer.* Maskell W. Peace, *Town Clerk.*

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Warrington Water Works Company's Acts, 1846, 1849, 1855, 1868, and 1878. *Capital Cost of Works.* £140,000	Warrington (Borough) and adjacent townships. 8,500	The domestic and ordinary trade supply is from wells in the red sandstone at Winwick, in Lancashire, and the special trade supply, or trade water in bulk, from gathering grounds of about 1,360 acres at Appleton, in Cheshire, where there is a large reservoir.	*Gallons.* — Average quantity supplied in 24 hours, **Gallons** .. .. .. **900,000** Compensation .. .. *Nil.*	*Gallons.* —	*Gallons.* —
North Shields Water Works Company's Act, 1786. *Capital Cost of Works.* £ s. d. By Cash paid to old proprietors and extensions . 89,483 18 7	Tynemouth Whitby Cullercoats North Shields Chirton Preston No. of houses supplied .. 7,000 Meters in use 48 7,048	Supply from mixed sources. (1) Springs from magnesian limestone. (2) From shaft in coal measures. (3) Gravitation catchment works. The company last year (1883) arranged with the Newcastle and Gateshead Water Company for a supplementary supply in bulk by meter, and have laid down the necessary mains to effect a junction at Holystone, whereby the water is introduced into the Billy Mill Reservoir.	*Gallons.* — Average quantity supplied in 24 hours, **Gallons** .. .. .. **650,000** Compensation . .. *Nil.*	*Gallons.* —	*Gallons.* By salt water

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td></td><td></td><td>£</td><td>£</td><td>£</td><td>£</td><td></td><td></td></tr>
<tr><td>33,494 (Borough)</td><td>47,000 to 50,000 supplied. (Borough & Out-Townships.)</td><td>146,976 (Borough)
Borough & Out-Townships upwards of 280,000</td><td>2,672</td><td>—</td><td>6,421</td><td>2. Domestic supply, 6 % on "net rateable value" of houses supplied. Closets included, but not baths.
3. Supply by meter—
Water for trade purposes will be supplied at the following rates and charges:—
If the consumption be under 3,100 gallons per day, at 1*s.* per 1,000 gallons; but not less than 10*s.* per quarter. 3,100 gallons and under 51,300 gallons per day, at 9*d.* per 1,000 gallons; but not less than £14 per quarter. 51,300 gallons per day and upwards, at 6*d.* per 1,000 gallons; but not less than £175 per quarter.</td><td>Lord Winmarleigh, *Chairman.*
John Ross, *Engineer.*</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 30th June, 1883,
£9,508
Dividends 5 % £3,750
Interest (Loans).. £1,025
" 4½ % Pref. Stock.. 1,646
2,671
£6,421</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>£ *s.* *d.*</td><td>£ *s.* *d.*</td><td>£ *s.* *d.*</td><td></td><td></td></tr>
<tr><td>38,960</td><td>45,000</td><td>177,854</td><td>3,833 9 11</td><td>*Nil.*</td><td>2,400 0 0 Dividend.
2,038 18 8 Interest.
162 2 0 ⅐th profit.
4,601 0 8</td><td>2. Domestic Rate on Rental or Annual Value 7½ % with water-closet, 6½ % without closet (uniform scale).
Scale of Charges—<table><tr><th></th><th colspan="2">Dwelling-Houses.</th></tr><tr><th>Rent or Ann. Value.</th><th>With W.C.</th><th>Without W.C.</th></tr><tr><td></td><td>£ *s.* *d.*</td><td>£ *s.* *d.*</td></tr><tr><td>£8</td><td>0 12 0</td><td>0 10 0</td></tr><tr><td>10</td><td>0 15 0</td><td>0 12 6</td></tr><tr><td>25</td><td>1 17 6</td><td>1 11 3</td></tr><tr><td>50</td><td>3 15 0</td><td>3 2 6</td></tr><tr><td>75</td><td>5 12 6</td><td>4 13 9</td></tr><tr><td>100</td><td>7 10 0</td><td>6 5 0</td></tr></table>Baths, 20*s.* per annum.
3. Trade purposes (by meter) 1*s.* per 1,000 gals.
Meter hire (per annum):
½ in. ¾ in. 1 in. 1½ in. 2 in.
12/- 16/- 20/- 30/- 40/-</td><td>Thos. Jackson, J.P., *Chairman.*
Alfred L. Forster, *Engineer.*
Henry Clarke, *Secretary.*</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 1st May, 1883,
£9,007 2 5
Dividend 6 % on £40,000. The Duke of Northumberland entitled to ⅐th of clear annual profits—viz., £162 2*s.* Loan Capital, £46,650.</td><td></td><td></td></tr>
</table>

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Heywood Corporation Water Works Acts, 1846, 1855, 1866, 1877,* 1883. *Capital Cost of Works.* Co. Sh. Capital £88,936 { Annuity paid £8,343 at 25 years.. .. £208,575 Co. Loan Cap. 23,983 Extensions (abt.) 65,000 Total .. £297,558 *Purchase by Local Board, 1877.	Heywood Heap Hopwood Birtle-cum-Bamford Pilsworth Middleton Tonge Castleton Chadderton Spotland Alkrington 10,000	The supply is from waters impounded and filtered at the Naden Deane, in the township of Spotland, and delivered a distance of 5 miles by gravitation. There is 90 days' storage.	*Gallons.* [This	*Gallons.* is not ascert	*Gallons.* ained.]
			Average quantity supplied in 24 hours, **Gallons** .. .. .. **900,000** Compensation 4¼ cubic feet per second (12 hrs.) 1,147,500 2,047,500		
Wakefield Corporation Water Works Acts, 1837, 1841, 1862, 1877,‡ 1880. Co. Orig. Cap. £68,000 New do... 38,200 £106,200 *Capital Cost of Works.* Purchased from Co. (1877) .. .. £210,000 0 0§ (£ s. d.) Costs, Extensions, &c... 8,820 11 5 218,820 11 5 Paid off (Sinking Fund) 3,100 0 0 Balance .. .. £215,720 11 5 ‡ Purchase by Town Council in 1877.	Wakefield, Alverthorpe with Thornes, Stanley-cum-Wrenthorpe, Sandal Magna Altofts (in bulk) Houses .. 8,600 Meters in use 170	The actual supply is partly pumped from the River Calder and partly from wells, a source to be relinquished shortly, and superseded by new gravitation works‖ for obtaining a supply from the gathering grounds of the Rishworth Moors over 3,200 acres of uncultivated land, the nature of which is gritstone and shale of the millstone-grit formation, about six miles south-west of Sowerby Bridge, and twenty miles west of Wakefield.	*Gallons.* 800,000 (1)	*Gallons.* 600,000 (2)	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. **1,400,000** (1884) (1) Revenue per annum .. £7,055 (2) Ditto ditto .. 6,200 £13,255		

HEYWOOD.—†N.B.—There is a proviso authorising increased water rents *outside the boro'*, proportional to any deficiency equitably supported by the district rate.

WAKEFIELD.—§The Corporation paid £48 for each paid-up original £25 share; £24 for each paid-up original £12 10s. share, and £11 for each paid-up £10 share, and, in addition, took over the debts and liabilities of the Company existing at the time of the purchase, say £30,000.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
37,587	44,770	£ 151,149	£ 2,545	£ 1,383	£ 8,343 Annuities 3,084 Interest £11,427	1. No public rate, deficiency hitherto charged upon district rate of the borough, (1883), £5,196. 2. On gross estimated rental (Act Parl. 1883†). The minimum charge = 14/6. Where premises— / Per ct. Do not exceed £20 — 10% Exceeding £20 ,, 40 — 9½% ,, 40 ,, 60 — 9% ,, 60 ,, 80 — 8½% ,, 80 ,, 100 — 8% ,, 100 — 7½% Previously the rate was 7½% to 5½% Closet, one (free); extra, 6/-. Baths, 7/6 per annum. 3. Meter supply, 6*d*. to 11*d*. per 1,000 gals.	Benjamin Buckley, *Chairman*. James Diggle, C.E., F.G.S., *Engineer*. A. Wallis, *Town Clerk*.
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 25th March, 1883, **£10,161**				
28,079	30,854 B 12,146 Out-Townships 43,000	141,548	£ *s*. *d*. 3,670 7 6	£ 1,300	£ *s*. *d*. 8,203 6 5	1. None applying to the present supply. 2. Dwellings occupied as separate tenements, on annual rack rent £6, £7, £8, £9, and £10 rates (payable by owner), not to exceed 7/6, 8/9, 10/-, 11/3, and 12/6. All dwelling-houses over £10. £11—£16 1/3 in the £ Rent per An. £ — Water Rent. £ *s*. — Rent per An. £ — Water Rent. £ *s*. 17 — 1 1 — 30 — 1 15 18 — 1 2 — 35 — 2 0 19 — 1 3 — 45 — 2 10 20 — 1 4 — 50 — 2 15 25 — 1 10 — 60 — 3 0 Above £60, 1/- in the £. Lock-up shops, &c., ¾ of above rate; water-closets, 6/-; baths, 8/- 3. Water by meter, 100,000 gals. per 6 months, 1/2 per 1,000 gals., increasing supplies at 1/1, 1/-, 11*d*., 10*d*., 9*d*., 8*d*., and above 12 millions, 7*d*. 1,000 gals.	H. Lee, *Chairman*. Ed. Filliter, M. Inst. C.E., *Cons. Engineer*. J. Sykes, *Managing Engineer and Secretary*. Chas. E. Coxon, *Boro' Accountant*. Chas. Jas. Hudson, *Town Clerk*.
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 30th June, 1883, **£13,255 2 8**				

‖ The Rishworth scheme is calculated to yield 3 million gals. per diem at first, to be increased later to 4 millions, besides 2 millions compensation to millowners on the Booth Dean Clough. The cost is put at a preliminary outlay of £160,000, with a further sum of £60,000 for the additional million. The works are in progress, the outlay on the 30th June, 1883, being £90,368 16*s*. 11*d*., the amount borrowed on account of the scheme, £108,440, the interest on which amounts to £4,126. A transfer of £1,561 from the general district rate towards this amount appears in the accounts for December 1882.

Statistics of Water Undertakings supplying large Manufacturing

<table>
<tr><th rowspan="2">Special Acts.
Capital Cost of Works.</th><th rowspan="2">Townships included in Water Limits.
Number of Houses supplied.</th><th rowspan="2">Description of Works and Source of Supply.</th><th colspan="3">Water supplied daily.</th></tr>
<tr><th>Domestic Supply.</th><th>Trade Purposes.</th><th>Flushing, &c.</th></tr>
<tr><td rowspan="3">Hastings Corporation Water Works Acts.
<i>Capital Cost of Works.</i>
Cost of Works £125,101
Paid off 39,061
Balance .. .. .. £86,040</td><td rowspan="3">Hastings
St. Leonard's
6,686</td><td rowspan="3">The supply is drawn from artesian wells and springs. The Filsham works, comprising reservoirs, filter beds, and well, recently opened, are credited with adding nearly 500,000 gals. per diem to the usual supply. These works have only cost £9,680, but only temporary engines and pumps are at present used in lifting the water.</td><td><i>Gallons.</i></td><td><i>Gallons.</i></td><td><i>Gallons.</i></td></tr>
<tr><td>—</td><td>—</td><td>—</td></tr>
<tr><td colspan="3">Average quantity supplied in 24 hours,
Gallons .. .. .. 700,000</td></tr>
<tr><td rowspan="4">Torquay Local Board Water Works Act, 1856.
<i>Capital Cost of Works.</i>
Total Cost of Works £96,000
Kennick Valley Extension .. 31,000
Total £127,000
Paid off (Sinking Fund, &c.) .. 15,954
Balance due .. .. £111,046</td><td rowspan="4">(1) Tormoham-with-Torquay
(2) St. Mary Church
(3) Wolborough-with-Newton Abbot
(4) Cockington
No. 1, 3,744
,, 2, 1,011
,, 3, 1,189
,, 4, 175
6,119
61 meters in use.</td><td rowspan="4">From springs, situate at Hennock on the Dartmoor, 14 miles from Torquay. The storage reservoir in which these waters are impounded is 35 acres in extent, 23 feet deep, and holds 105 million gals. This supply is conducted through iron pipes to service reservoirs at Torquay, and redistributed over the entire district. Supplementary works upon an estimated outlay of £31,000 are in course of construction in the Kennick Valley, 750 feet above sea level—viz., a reservoir, above the site of the present one, 60 acres in extent, 30 feet deep, to hold 194 million gals. The potential limits of these works will then be two millions a day, or security against 300 days' supply of present demand.</td><td><i>Gallons.</i></td><td><i>Gallons.</i></td><td><i>Gallons.</i></td></tr>
<tr><td>850,000 †</td><td>‡</td><td>150,000</td></tr>
<tr><td colspan="3">Average quantity supplied in 24 hours,
Gallons 1,000,000
Compensation .. <i>Nil.</i></td></tr>
<tr><td colspan="3">† Revenue, per annum } £7,970 17 8
‡ ,, ,, }</td></tr>
</table>

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£ s. d.	£ s. d.	£ s. d.		
29,291	42,258	301,964	4,866 9 8*	2,879 19 7	3,113 9 3	1. Interest and part principal on Capital Account charged to General District Account, £5,993 8*s.* 10*d.* 2. Domestic supply, 8*d.* in the £ on rateable value. 3. Trade purposes (by meter)—1/- per 1,000 gallons.	R. A. Hill, *Chairman.* Ed. Easton, M. Inst. C.E., *Cons. Engineer.* Wm. Andrews, *Engineer.* Geo. Meadows, *Town Clerk.* Ben. F. Meadows, *Deputy Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1884, **£8,313 0 10** * The balance of the water works general account (£3,483 2*s.* 2*d.*) is transferred to the general district account, as a set-off to the amount charged to latter.				
			£	£	£		
(1) 21,657 (2) 4,472 (3) 6,082 (4) —	24,767 5,759 7,662 1,000	127,705§	2,702	1,862	2,689	1. None. 2. Domestic rate charged on annual value 30 % less than the rent—1/- in district, 1/3 outside do. } in the £. Baths (extra) and closets included in domestic charge. 3. Trade (by agreement and by meter)—1/4 in the district, 1/8 outside do. } per 1,000 gals.	John Kitson, *Chairman.* T. S. Weeks, Assoc. M. Inst. C.E., *Engineer.* Briscoe Hooper, *Town Clerk.*
32,211	39,188 (1881) 41,000 (1884)		Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 25th March, 1883, **£7,970 17 8** § A rate in aid could only be charged in Torquay.				

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Chester Water Works Company's Acts, 1857, 1874. *Capital Cost of Works.* £ s. d. Cost of Works 84,300 11 0	Chester Hoole	The water is pumped from the River Dee into a subsiding reservoir, and then filtered. The filtered water is stored in a covered reservoir, from which it is pumped into a high-level tank for the supply of the city.	*Gallons.* (1)	*Gallons.* (2)	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. **1,534,912** (1) Revenue per annum..£8,374 7 5 (2) Do. do. .. 1,752 18 2		
Exeter Corporation Water Works Acts, 1833, 1878 (purchase). *Capital Cost of Works.* 8 % Annuities on £50,000. £ s. d. ∵ Purchase Capital .. .. 94,000 0 0 Company's original Mortgage Capital— Debentures .. .. 16,000 0 0 Lloyd's Bonds.. .. 5,419 0 0 Extension and Costs.. .. 9,112 19 1 Total .. £124,531 19 1	Exeter* St. Thomas Heavitree 6,000	The supply is from the River Exe, pumping by two breast wheels and a steam engine. Service reservoirs for six millions.	*Gallons.* 1,060,000	*Gallons.* 160,000	*Gallons.* 180,000
			Average quantity supplied in 24 hours, **Gallons** **1,400,000**		

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* EXETER.—This refers solely to the area of the city and county of the city of Exeter. St. Thomas' Local Board have water works of their own, and the corporation's is only a concurrent supply; great part of the parish is rural and unserved. Great part of Heavitree is also rural, and unsupplied by the corporation.

† The area of supply (which exceeds the area of the jurisdiction of the corporation) probably contains a population of 45,000.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*		
37,240	40,342	151,980	4,815 14 10	424 12 4 §	4,981 12 3 ‖	2. Domestic supply on "annual value," maximum 7½ %, minimum 5 % Scale of charges— An. Value. — Per Annum. 2nd Closet — 1st Bath £5 — 7/4 — 3/- — 5/- 15 — 1/2/4 — 6/- — 8/- 20 — 1/10/- — 8/- — 10/- 25 — 1/15/- 30 — 2/2/- — 10/- — 15/- 50 — 3/5/- 75 — 4/10/- 100 — 5/10/- Exceeding £109, 5 % per annum. "One" closet included, with no extra charge. For each additional closet or bath beyond above, 4/- per annum. 3. Trade purposes— (By meter) 1/6—6*d.* per 1,000 gals. per quarter.	Wm. Brown, *Chairman.* John Dugdale, *Engineer.* Edwin Lloyd, *Secretary.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 30th June, 1883, **£10,127 5 7** § Depreciation Account. ‖ Dividends 6 %—7 % on £60,000, including £500 annuity to "old Company." Mortgages, £16,700.				
			£ *s.* *d.*	£	£ *s.* *d.*		
36,632	38,000† (1881)	186,500*	3,478 15 1	460	4,984 0 11 ¶	1. None. 2. Domestic scale— 5 % on rateable value. ∴ 6*d.* in the £ for half-year. Water-closets and baths included. (Yields) £8,754 2*s.* 2*d.* 3. Trade purposes— (Meter supply) 1/6 to 9*d.* per 1,000 gallons. (Yields) £1,776 18*s.* 8*d.*	City Water Committee, Alderman Pring, *Chairman.* Donald Cameron, *City Surveyor.* Bartholomew C. Gidley, M.A., *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883, **£10,548 5 7** The balance of profit is £1,625 9*s.* 7*d.* ¶ Interest on loan £124,359 15*s.* 7*d.*				

CHESTER.—The owners of all dwelling-houses or parts of dwelling-houses occupied as separate tenements not exceeding the annual value of £10 will be required to pay the rates for the same instead of the occupiers thereof. Landlords contracting to pay for two or more houses whether tenanted or empty will be charged upon a reduced estimate of three-fourths of the annual rents.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Macclesfield Corporation Water Works Acts, 1849, 1882. *Capital Cost of Works.* Cost of Works .. .. £70,453 Sinking Fund .. .. 7,379 Balance due £63,074	Macclesfield Sutton and Hurdsfield 8,360 houses 103 meters in use	The town is supplied with water from gravitation works. The drainage area is about 2,000 acres, situate 4 or 5 miles south-east of the town, over the coal formation, and by springs on the Macclesfield Common. The total storage capacity available for the supply of the town is 204,000,000 gallons.	664,643*	120,784†	—
			Average quantity supplied in 24 hours, **Gallons** .. .. **785,427** Compensation (daily)=810,000 gals.		
			*Revenue (per ann.) .. £4,004 11s. 3d. † ,, (by meter) . £1,133 15s. 3d.		
			Gallons.	*Gallons.*	*Gallons.*
Lincoln Corporation Water Works Acts, 1846, 1871‡. *Capital Cost of Works.* £ s. d. Cost of Works .. .. 63,827 0 0 Extensions .. .. 28,773 7 1 92,600 7 1 Paid off by Sinking Fund 5,792 1 0 £86,808 6 1	Lincoln Houses .. .. 8,063 Water-closets 1,096 Baths 240	The supply is from the drainage area of the Prial Brook. These waters are impounded in a reservoir of 23 acres at Skellingthorpe. There is a brick culvert from there to the pumping station at Boultham, near Lincoln, where the water is pumped and filtered through a 9-inch main, about two miles in length, into a service reservoir at the north part of Lincoln to a height of about 248 feet above the level of the pumping station. The Corporation have now under their consideration the question of obtaining additional supplies of water.	584,000	155,830 §	11,000
			Average quantity supplied in 24 hours, **Gallons** .. .. **750,830** Compensation .. .. *Nil.*		
‡ Purchased by Town Council.			§Yields aggregate revenue £1,909 18s. 5d.		

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£ s. d.	£ s. d.	£ s. d.		
35,450	37,514	91,678	1,769 4 5	376 15 4	2,755 1 6	1. None. 2. "Annual value" hitherto, henceforth rateable value, which will reduce income. Baths & closets free henceforth. 3. Trade (by meter), at 6*d.* per 1,000 gallons.	F. Jackson, *Chairman.* Jabez Wright, *Engineer.* Joseph Barclay, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 31st August, 1883, **£5,281 7 9**				
			£ s. d.	£ s. d.	£ s. d.		
26.766	37,312 39,900 (1884)	137,074	2,523 9 2	767 15 6	3,891 13 1	1. None. 2. Domestic supply on rack rents 1*s.* in the £. ∴ Five per cent. per annum. Baths and closets are charged for separately beyond the first closet. 3. Trade purposes (by meter), 9*d.* per 1,000 gallons.	The Corporation as an Urban Sanitary Authority. F. J. Clarke, Mayor, *Chairman.* H. Teague, *Engineer.* H. K. Hebb, *Clerk to the Urban Sanitary Authority.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 25th March, 1883, **£7,456 9 3** £1,000 was paid chiefly out of surplus profits brought forward during the year in relief of the General District Rates.				

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Carlisle Corporation Water Works Acts [*None*]. £ *s.* *d.* Paid Company (1866) .. 31,504 13 0 *Capital Cost of Works.* Original Cost and amount expended in extensions to date .. .. 53,655 5 11 Written off (depreciation) 14,242 14 5 Balance due .. £39,412 11 6	Carlisle 7,786 houses 95 meters in use	The water is pumped from the River Eden, the intake one mile from town. These are pumping works in efficient and good working repair. The pressure maintained on the mains is equal to 100 feet head of water. The potential limits of the works are 120 feet.	*Gallons.* 625,994*	*Gallons.* 198,367†	*Gallons.* 64,383
			Average quantity supplied in 24 hours, **Gallons** .. .. .. **888,744** £ *s.* *d.* *Revenue (per annum).. 5,484 19 7 † ,, , .. 1,862 0 7		
Darlington Local Board Acts, 1854,‡ 1861; Extension and Improvement Act, 1872 (Corporation). *Capital Cost of Works.* £ Cost of Works .. .. 101,790 Paid off by Sinking Fund.. .. 23,845 Actual.. .. .. £77,945	Darlington Cockerton Blackwell About 6,700 houses	The water is pumped from the River Tees, and, after being filtered at the pumping station, is then pumped into the water mains, to supply the town. There are two service reservoirs, situate in different directions about two miles from the centre of the town, which supply the town when the engines are standing. The pressure of water at the water works from 75 to 115 feet.	*Gallons.* 640,000§	*Gallons.* 760,000‖	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** **1,400,000**		
‡ Purchased under Local Board Act, 1854.			Aggregate Revenue— § 248,689,000 gallons .. £5,229 ‖ 250,868,000 ,, .. 4,759		

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td></td><td></td><td>£</td><td>£ s. d.</td><td>£ s. d.</td><td>£ s. d.</td><td></td><td></td></tr>
<tr><td>31,049</td><td>35,884</td><td>139,376</td><td>2,971 9 2</td><td>1,650 0 0</td><td>907 3 11</td><td rowspan="2">1. None.
2. On rental: Per Ann.
Where the yearly rent is £5.. 4/-
Over £5 and under £6.. .. 5/-
" 6 " 7.. .. 6/-
" 7 " 8.. .. 7/-
" 8 " 9.. .. 8/-
" 9 " 10.. .. 9/-
" 10 " 11.. .. 9/6
" 20 " 21.. ..14/6
And for every additional £ or fractional part thereof, 6<i>d</i>. Closets, from 3<i>s</i>. to 10<i>s</i>.; additional, 3<i>s</i>. Baths, 5<i>s</i>.
3. Trade (by agreement and by meter), 10<i>d</i>. per 1,000 gallons, diminishing to 6<i>d</i>.</td><td rowspan="2">R. Forster, <i>Chairman</i>.
J. Hepworth, Assoc. M. Inst. C.E., <i>Engineer</i>.
J. Nanson, <i>Town Clerk</i>.</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 30th June, 1883,
£7,347 0 2</td></tr>
<tr><td></td><td></td><td></td><td>£</td><td>£</td><td>£</td><td></td><td></td></tr>
<tr><td>29,429</td><td>35,400</td><td>154,111</td><td>3,340</td><td>2,570</td><td>3,075</td><td rowspan="2">1. None.
2. Domestic supply on "Annual Rateable Value" as assessed to the Poor Rate.
<table>
<tr><th rowspan="2"></th><th colspan="2">Per Cent. per Ann.</th></tr>
<tr><th>Dwelling-Houses.</th><th>Compound Houses & Shops.</th></tr>
<tr><td>Not exceeding £12</td><td>£7 0 0</td><td>ditto</td></tr>
<tr><td>" " 15</td><td>6 10 0</td><td>ditto</td></tr>
<tr><td>" " 20</td><td>6 10 0</td><td>less ⅛</td></tr>
<tr><td>" " 40</td><td>6 0 0</td><td>ditto</td></tr>
<tr><td>" " 80</td><td>5 10 0</td><td>less ⅖</td></tr>
<tr><td>" " 150</td><td>5 0 0</td><td>ditto</td></tr>
<tr><td>Upwards .. ..</td><td>4 10 0</td><td>ditto</td></tr>
</table>
Warehouses, lock-up shops, and offices, less two-thirds the rates of dwelling-houses. Closets are <i>free</i>. Baths, under £40, 6<i>s</i>. (first), 4<i>s</i>. for additional; £40 and upwards, 8<i>s</i>. (first), 4<i>s</i>. for additional.
3. Trade purposes (quarterly)—
Meter supply, 1<i>s</i>. 3<i>d</i>. (30,000 gals.), 1<i>s</i>., 9<i>d</i>., 7<i>d</i>., 6<i>d</i>., 5½<i>d</i>., and 4<i>d</i>. per 1,000 gals. (1,600,000 gals.).</td><td rowspan="2">E. Lucas Pease, <i>Chairman</i>.
Thomas Smith, <i>Engineer</i>.
Hugh Dunn, <i>Town Clerk</i>.</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 30th June, 1883,
£9,988
Baths are charged, but not water-closets.</td></tr>
</table>

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Aberdare Local Board Water Works Acts, 1858 and 1870. *Capital Cost of Works.* £100,000 No Sinking Fund; loans repaid by annual instalments of principal and interest. Balance due .. £75,616 16*s.* 11*d.*	Aberdare 6,525	Gravitation works. Water impounded in storage reservoirs from Dare, Nantmelyn, and Nanthir streams. Capacity of reservoirs, 47,000,000 gals.	652,500	20,000	5,000
			Average quantity supplied in 24 hours, **Gallons** **677,500**		
			Gallons.	*Gallons.*	*Gallons.*
Scarborough Corporation Water Works Act, 1878. *Capital Cost of Works.* £ s. d. Net amount payable on transfer from the Water Company to the Corporation .. .. 153,159 17 7 New Works and Extensions 20,211 5 6 £173,371 3 1	Scarborough and Falsgrave	The present supply is pumped from springs at the foot of the cliffs in Cayton Bay; from a well at Osgodby, near the village of Cayton. A new bore has been sunk in the oolite formation 400 feet deep at Irton, near Seamer, yielding an extra supply of over one million gallons per day.	722,205*	127,795† For 313 working days or 40 million gallons per annum.	—
			Average quantity supplied in 24 hours, **Gallons** .. .. .. **850,000** * Revenue £8,732. † ,, 3,255.		

SCARBOROUGH.—The transfer of the undertaking to the corporation was effected by the "Scarborough Corporation Water Act, 1878." The company's share capital was £65,000; their mortgage debt, £17,100; their dividends were restricted to 9 per cent. on £35,000, and 7½ per cent. on £30,000. The consideration paid by the corporation (in addition to taking over all debts) was the issue to the shareholders of perpetual annuities equal to the maximum dividends payable under the Companies' Acts. The company had paid maximum dividends for some years. The original proposal of the late company to procure a soft-water

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). — Dividends and Interest (Companies).		
		£	£	£	£		
36,112	33,804 34,500 (Dec. 1883)	131,290	588	5,415‡		1. Rate in aid in the £ = 5*d.*, or £2,059. 2. Under £20 annual value, 6 %; above £20, 5 %. 3. Meter charges, from 2/- per 1,000 to 6*d.* per 1,000, according to consumption.	ReesHopkinRhys, *Chairman.* Thos. Lloyd Edwards, *Engineer.* R. Orton-Gery, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th Dec. 1883, **£3,676**				
			‡ The annual instalment increases annually, while the interest decreases, making a fixed annual payment.				
			£ *s.* *d.*	£	£ *s.* *d.*		
30,504	32,000	£156,758 2*s.*	3,801 14 10	none	6,687 7 7	1. None. 2. Domestic supply— 5 % on annual value, as valued for an assessment to the Poor's Rate. W.C., 10/- for one and 5/- for each one extra. Baths, 10/- for one. Extra, 5/- each. 3. Charge by meter— A sliding scale from 2/- to 1/- per 1,000 gallons.	Alderman John Woodall Woodall, *Chairman.* Edward Filliter, M.Inst.C.E., *Engineer.* WilliamMillhouse, Assoc.M.Inst. C.E., *Manager.* George Dippie, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 30th June, 1883, **£12,185 11 5**				

supply from Harwood Dale has been abandoned by the corporation, and the present scheme for an additional supply is to sink deep wells into the oolitic measures. This, under the superintendence of Mr. E. Filliter, has already been attended with great success, a bore-hole near Seamer Junction yielding a supply of 1,000,000 gallons a day. The total cost of these works will not exceed £30,000.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Perth Water Works Commissioners' Act, 1877. *Capital Cost of Works.* £ s. d. Cost of Old Works .. .. 10,830 19 6 Cost of New Works .. .. 40,500 0 0 Total .. .. .. £51,330 19 6* Paid off Sinking Fund .. 2,416 1 8 £48,914 17 10	Perth 5,515 houses supplied 43 meters in use	The water is drawn from filter beds in an island in the River Tay, and pumped to three reservoirs at various heights, the highest being 330 feet above the lowest part of the city.	*Gallons.* —	*Gallons.* —	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons .. 1,306,000**		
Lancaster Corporation Water Works Acts of 1852, 1855, 1864, 1876, 1880. *Capital Cost of Works.* Cost of Works† .. .. 99,711 6 7 Redeemed .. .. 25,002 19 3 Balance, 30th June, 1883 £74,708 7 4 † Extension of water mains are paid for out of revenue.	Lancaster Skerton ‡ Poulton, Bare, and Torrisholme, otherwise Morecambe ‡ Scotforth Township Houses in Lancaster and Skerton, 4,567 Meters, 182	The works consist of various equilibrium basins and two small reservoirs holding together about 1,000,000 gals., less than a day's consumption, together with gauge chambers, &c. The supply is by gravitation from springs on the Fells, on the north side of the Wyre Valley. The water is intercepted by stoneware collecting pipes which contour the side of the valley, and conduct the water to the town mains. A compensation reservoir has been constructed on the Wyre to hold 185 million gals. The highest point of intake is 1430 O. D.	*Gallons.* 613,000	*Gallons.* 523,300§ Consumers by meter, not necessarily for trade purposes.	*Gallons.* Included in domestic supply.
			Average quantity supplied in 24 hours, **Gallons .. .. 1,400,000** With power to take 2,000,000. Revenue per annum...... £3,464 Do. do. 3,487 £6,951		

PERTH.—* The actual money debt is £37,128 18*s.* 4*d.* The £10,830 19*s.* 6*d.* is the nominal value of the old works.

§ The supply to Morecambe and Scotforth are included in this quantity.

¶ There is an additional summer population at Morecambe of about 6,000.

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
25,585	30,946 Outside population supplied, 200 31,148	£ 113,960 Railways, 10,840	£ s. d. 3,712 16 10½ Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 30th Sept., 1883, **£5,529 5 5½**	£ s. d. 481 16 11	£ s. d. 1,524 16 5	1. One penny per £ on rental yields £525. 2. Domestic rate 8*d.* per £ on houses, and 4*d.* per £ on other premises. Outside area, 1*s.* and 6*d.* Baths and w.c.'s not included—in extra charges. 3. Meter supply charged from 4*d.* to 9*d.* per 1000 gals. according to quantity used.	Perth Water Commissioners. Andrew Martin, Lord Provost, *Chairman.* J. Peattie, *Engineer.* William MacLeish, *Town Clerk.*
17,245 1,817 3,005¶ 1,139 23,206	20,664 } ‖ 2,838 } 3,931 2,264 29,697 ‖ Lancaster, 21,821 Skerton, 3,249 (1884)	86,212	£ 2,382 Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 30th June, 1883, **£7,476 13 8**	£ 1,698	£ 3,083	1. None. 2. On annual value (revised to mean rateable value). *Dwelling-Houses.*—One closet allowed. Owners under £10 liable for water rent, viz.—(£3) 4/8, (£5) 7/4, &c., &c., to (£10) 14/8 per ann. May compound on a composition of 15 %, occupied or not. Where the annual value amounts to— — Per annum. £ s. d. D.-H. ... £10 .... 0 14 8 " .. 15 .... 1 1 0 " .. 20 and under £21 1 7 4 " .. 50 " " 51 2 7 4 " .. 75 " " 76 3 4 0 " .. 98 " " 100 3 16 0 And so on at rate of 1/– for each additional £2 of value. *Shops with Dwelling-houses.*—Under total annual value, £10 10*s.*, same as dwelling-house; beyond, water-rent on two-thirds of annual value. Minimum charge at £10 10*s.* *Lock-up Shops.*—On one-third annual value. Baths, 6*s.* per annum. W.C. (extra), 6*s.* per annum. 3. Supplies by meter**— Per Quarter. Per 1000 Gals. For any quantity not exceeding .... 100,000 .. 1*s.* For any quantity after first 100,000 and not exceeding .... 200,000 } 9*d.* For any quantity after .... 200,000 .. 6*d.*	Wm. Roper, *Chairman.* Alfred Creer, Assoc.M.Inst.C.E., *Engineer.* Thos. Swainson, *Town Clerk.*

LANCASTER.—‡ Supplied by meter. Meter rents are fixed at—

	Price. £ s. d.	Will pass per hour.	Rent per annum.
** Kennedy's ⅜" meter	3 15 0	1,000 gals.	8/–
" ½" "	5 7 6	1,500 "	11/–
" ¾" "	6 11 0	2,500 "	13/–
" 1" "	8 18 0	4,000 "	18/–

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Doncaster Corporation Water Works Acts, 1873 and 1880. Provisional Orders Confirmation Act, 1879 and 1883. *Capital Cost of Works.* Cost of Works .. .. £170,000 Paid off (Sinking Fund) .. .. 4,385 Balance due .. .. £165,615 Under Act 1873, repayment stipulated for 36 years, viz., 1st, £85,000. Under Provisional Order 1879, repayment stipulated for 60 years, viz., 2nd, £85,000. Since made uniform, 45 years, in Provisional Order 1883.	Doncaster Wheatley Balby-with-Hexthorpe Bentley-with-Arksey 4,200 houses	The new gravitation works, sanctioned by the Act of 1873, were opened in November 1880. These consist of large storage reservoirs, the principal at Thrybergh and the other two at Silverwood and Ravenfield, of a united capacity of 250 million gallons. The water is collected from the Silverwood and Micklebring drainage area. There are filter beds, a meter house, and resident engineer's house. The source of supply is distant 8 miles from Doncaster. The conduit is in some parts carried through tunnels, and the service reservoir situate at Warmsworth.	— Average quantity supplied in 24 hours, **Gallons** .. .. .. **686,000** Compensation .. .. 315,000 Total 1,001,000	—	—
			Gallons.	*Gallons.*	*Gallons.*
The Rossendale Water Works Company Acts, 1853, 1854. *Capital Cost of Works.* £33,158	Bacup Spotland and Newchurch townships Houses supplied 1,926 Meters in use 44	Water is drained from the hills and stored in a reservoir, and distributed to the town in 8 in. main.	206,500 Average quantity supplied in 24 hours, **Gallons** .. .. .. **240,000** Compensation, 1 cubic foot per second during "factory hours" only. * Per meter, 33,500 per diem.	33,500*	100

DONCASTER.—† Owners compounding for groups of two or more houses on condition of paying the water rent thereof whether tenanted or not will be entitled to a discount or drawback in the following cases :—

Compounding clause (owners):—

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td></td><td></td><td>£</td><td>£</td><td>£</td><td>£</td><td></td><td></td></tr>
<tr><td>18,768</td><td>21,139
5,902</td><td>100,788</td><td>1,343</td><td>1,179</td><td>6,988</td><td>1. Borough fund, £3,560 12<i>s.</i> 3<i>d.</i></td><td>A. J. Smith, J.P., <i>Chairman.</i></td></tr>
<tr><td></td><td>27,041
(1881)</td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 31st August, 1883,
£5,128 8 10</td><td>2. On annual rack rent or value (one closet included) †—
<table>
<tr><th>Rack Rent.</th><th>Per Annum.</th><th>Rack Rent.</th><th>Per Annum.</th></tr>
<tr><td>£</td><td>£ <i>s.</i> <i>d.</i></td><td>£</td><td>£ <i>s.</i> <i>d.</i></td></tr>
<tr><td>14</td><td>1 1 0</td><td>50</td><td>3 5 0</td></tr>
<tr><td>20</td><td>1 10 0</td><td>75</td><td>4 10 0</td></tr>
<tr><td>25</td><td>1 15 0</td><td>100</td><td>5 10 0</td></tr>
</table>
Above £100, 5 % on annual rack rent or value.
Warehouses, shops, and offices (non-residential) charged on one-half rental.
Baths and extra closets from 5/- to 12/- per annum.
Additional beyond, 5/-
3. Trade (by meter)—
From 1/- to 8<i>d.</i> per 1,000 gallons.</td><td>Ben. S. Brundell, M. Inst. C.E., <i>Engineer.</i>
W. E. Shirley, <i>Town Clerk.</i></td></tr>
<tr><td></td><td></td><td></td><td>£ <i>s.</i> <i>d.</i></td><td>£</td><td>£ <i>s.</i> <i>d.</i></td><td></td><td></td></tr>
<tr><td>22,556</td><td>25,034</td><td>84,735</td><td>232 10 0</td><td>—</td><td>1,232 0 0</td><td>1. None. Does not apply.</td><td>W. H. Downham, <i>Chairman.</i></td></tr>
<tr><td></td><td>26,500
(1884)</td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 31st December, 1883,
£1,818 17 7</td><td>2. Water rate same per quarter as rent of house per week.
Baths and closets, extra.
3. 2/- per 1,000 down to 6<i>d.</i>, as per quantity used.</td><td>John Isaac Mawson, <i>Engineer.</i>
James Aked, <i>Secretary.</i></td></tr>
</table>

<table>
<tr><td rowspan="4">When the rent is £10 and under—</td><td colspan="6">Annual Rent.</td><td rowspan="4">Drawback allowed when the local rates are included in the rent and paid by the owner, <i>one-third.</i> If not included in the rent, and not paid by the owner, reduced to <i>one-fourth</i> on foregoing charges.</td></tr>
<tr><td>£5</td><td>£6</td><td>£7</td><td>£8</td><td>£9</td><td>£10</td></tr>
<tr><td colspan="6">Rate (Water).</td></tr>
<tr><td>8/4</td><td>9/-</td><td>10/4</td><td>12/-</td><td>13/4</td><td>15/-</td></tr>
<tr><td rowspan="4">Beyond £10 and not exceeding £13.</td><td colspan="6">Annual Rent.</td><td rowspan="4">Drawback allowed when the local rates are included in the rent and paid by the owner, <i>one-fourth</i> on foregoing charges.</td></tr>
<tr><td colspan="2">£11</td><td colspan="2">£12</td><td colspan="2">£13</td></tr>
<tr><td colspan="6">Rate (Water).</td></tr>
<tr><td colspan="2">16/4</td><td colspan="2">18/-</td><td colspan="2">19/4</td></tr>
</table>

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Leamington Corporation Water Works (under Public Health Act, 1875). *Capital Cost of Works.* £ s. d. Cost of Works .. .. 33,826 10 6 Paid off .. .. 4,284 0 0 £29,542 10 6†	(1) Leamington (2) Milverton (3) Lillington (1) 4,529 out of 5,302 (2) 346 „ 546 (3) 99 „ 145 4,974 „ 5,993	The town was originally supplied from the River Leam, under a pumping contract. The new water works were opened by Mr. S. T. Wackrill, J.P., in March 1879. The supply is from deep borings in the new red sandstone. There are two wells, each with a borehole 242 and 212 feet deep from the surface respectively. One well is 8 feet, the other 20 feet in diameter within the linings, and both are about 110 feet deep. They are 50 feet apart, and are united by an adit 6 feet high by 4 feet wide. The larger well contains the pumping machinery, over which is placed the engine-house containing 2 horizontal steam engines each of 60 h.-p., and in this well are fixed 2 pairs of pumps 18 inches in diameter of bore and 5 feet stroke. Either engine may work either pair of pumps. The water is pumped into reservoirs on the Newbold Hills. The potential limit of supply is 1¾ million of gallons per diem.	570,000*	20,000 (1)	10,000 (2)
			Average quantity supplied in 24 hours, *Gallons.* 600,000 Add summer months for street watering and gardens 200,000 **800,000**		
			(1) Revenue (per annum) .. £3,287 (2) „ „ .. 134		
			Gallons.	*Gallons.*	*Gallons.*
Keighley Corporation Water Works Acts, 1867‡, 1869, 1872, 1881 (Prov. Order). *Capital Cost of Works.* Cost of Works .. .. £215,200 Paid off (Sinking Fund) 14,360 £200,840	Keighley Bingley (part)	The town of Keighley is situated in the valley of the Aire, at the junction of the River Worth. The watershed of the latter is the source drawn upon, the water being impounded in the Water Sheddles reservoir and allowed to flow for 6 miles through an iron pipe into Blackhill high-service reservoir, through which the water is also filtered 500 feet above the level of the town. There is a considerable provision for compensation to Worth millowners from the Ponden reservoirs, 215 million gals. in capacity.	900,000	210,000	1,000
			Average quantity supplied in 24 hours, **Gallons** .. .. **1,111,000** Compensation cannot be given.		

‡ Purchase by Local Board, 1867.

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* LEAMINGTON.— Including Milverton and Lillington, 70,000 per diem. ∴ 25 million per annum, at 9*d.* per 1,000 gals.

† The cost is not inclusive of reservoirs and street mains.

For many years Mr. S. T. Wackrill, J.P., with whom the present works may be said to have originated, occupied the position of chairman of the water committee, and appears to have bequeathed his successor one of the cheapest and best-appointed works in that part of the country.

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td>20,910</td><td>22,979
2,161
938
26,078</td><td>£
130,987</td><td>£ s. d.
2,001 7 1</td><td colspan="2">£
2,096
Interest & Capital at 6 %</td><td>1. None. The general district rate contributes to any temporary deficiency due to the very low water rates charged.
2. On rateable value.</td><td>W. Gilbert, <i>Chairman.</i></td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 31st August, 1882,
£3,420</td><td><table>
<tr><th rowspan="2">Schedule.</th><th colspan="3">Per Annum. Gross.</th><th colspan="3">Per Annum. Net.</th></tr>
<tr><th>£</th><th>s.</th><th>d.</th><th>£</th><th>s.</th><th>d.</th></tr>
<tr><td>Houses not rated to the relief of the poor above £6 ..</td><td>0</td><td>5</td><td>0</td><td>0</td><td>4</td><td>0</td></tr>
<tr><td>Above £6 & not exceeding £8</td><td>0</td><td>6</td><td>3</td><td>0</td><td>5</td><td>0</td></tr>
<tr><td>" 20 " 22</td><td>0</td><td>15</td><td>0</td><td>0</td><td>12</td><td>0</td></tr>
<tr><td>" 50 " 55</td><td>1</td><td>12</td><td>6</td><td>1</td><td>6</td><td>0</td></tr>
<tr><td>" 75 " 80</td><td>2</td><td>2</td><td>6</td><td>1</td><td>14</td><td>0</td></tr>
<tr><td>" 95 " 100</td><td>2</td><td>10</td><td>0</td><td>2</td><td>0</td><td>0</td></tr>
</table>
And so on at the rate of 2<i>s.</i> 1<i>d.</i> (gross) for every additional £5 increased assessment.
Baths and closets are included.
N.B.—Discount 20 % allowed off gross charges if paid within a month, and 25 % allowed from the rateable value where trade is carried on and the water taken for domestic purposes.
3. Trade (by agreement and by meter), 9<i>d.</i> per 1,000 gallons.</td><td>W. de Normanville, Assoc. M. Inst. C.E., <i>Engineer.</i>
H. Consett Passman, <i>Town Clerk.</i></td></tr>
<tr><td>19,775</td><td>25,245</td><td>82,878</td><td>£ s. d.
1,872 6 10</td><td>£ s. d.
2,063 19 0</td><td>£ s. d.
8,316 4 10</td><td>1. Public rate 4<i>d.</i> in the £.
(1) £1,304.
(2) Transfer gas department, £3,750.</td><td>B. S. Brigg (Alderman), <i>Chairman.</i></td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 25th October, 1883,
Rental, &c. £5,023
Public Rate 1,304
£6,327</td><td>2. On annual rack rent or value.
Charges per Ann.
Up to £5, 6, 7, 8 .. 7/6, 9/-, 10/6, 12/-,
" £9 .. 13/6
" 10 .. 15/-
" 25 .. 1/15/-
" 50 .. 3/5/-
" 75 .. 4/10/-
" 100 .. 5/10/-
Exceeding £100 .. 5 per cent.
Water-closets included where water rents exceed 13<i>s.</i>; additional closet, 5<i>s.</i>; baths, 10<i>s.</i>
3. Trade purposes (by meter)—
Under 200,000 gallons, 8<i>d.</i> per 1,000 gals. per quarter.
Increasing quantities charged at diminishing rates down to over 3 million, 6<i>d.</i> per 1,000 gals. per quarter.</td><td>F. C. Stileman, M. Inst. C.E., <i>Cons. Engineer.</i>
Seth Craven, <i>Water Engineer.</i>
G. Burr, <i>Town Clerk.</i></td></tr>
</table>

KEIGHLEY.—Meter hire per quarter—⅜ in., 2/-; ½ in., 2/6; ¾ in., 3/-; 1 in., 3/6; 1¼ in., 4/3; 1½ in., 5/-; 2 in., 6/-; 2½ in., 7/6; 3 in., 9/-; 4 in., 11/3; 5 in., 14/6; 6 in., 20/-.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
The Dunfermline Water Works Act, 1847, and the Dunfermline Water Act, 1876. *Capital Cost of Works.* Cost of Company's Works (1866) £20,750 Additional Works constructed by Corporation subsequent to 1866 10,750 Glensherup scheme .. .. .. 66,000 Extensions .. .. 3,000 100,500 Redeemed, &c. .. .. 12,442 £88,058* * This balance includes £9,890 of unredeemed stock of the old Water Company held as a loan in perpetuity and bearing an annuity of 3 %.	Dunfermline Inverkeithing Charlestown Limekilns Aberdour North Queensferry Townhill Kingseat (Only the Parliamentary Burgh of Dunfermline within the compulsory limits of supply.) Inhabited houses 3,692 (Last census, only *tenements* given.) Meters in use 48	The works of the original Company were acquired in 1866, and were supplemented by (1) an additional reservoir at Craiglusear in 1866–1868, and (2) the Glensherup scheme commenced in 1877 and completed in 1881. The water is that impounded from a stream and drainage area of 1,300 acres. The flow of water is 1¼ million gallons per diem.	240,000‡	330,000§	50,000
			Average quantity supplied in 24 hours, **Gallons** .. .. .. **620,000** Compensation .. .. 492,000 1,112,000 ‡ Revenue, per annum .. £2,250 § ” ” .. 2,500 £4,750		
			Gallons.	*Gallons.*	*Gallons.*
Wallasey Local Board Water Works Acts, 1858, 1861, 1872. P.O. 1863. *Capital Cost of Works.* £ s. d. Original sum borrowed .. 70,560 0 0† Paid off (sinking fund) .. 10,779 19 4 Balance due .. £59,780 0 8 † The actual outlay on water works is £67,292 3*s.* 11*d.* 25th March, 1883.	Wallasey Poulton-cum-Seacombe Liscard Houses supplied 4,830 Meters in use 92	Two artesian wells in the new red sandstone. Both wells 400 feet deep. No. 1 well, diameter 7 feet for 100 feet deep, and 13″ borehole 300 feet. No. 2 well, diameter 7 feet for 100 feet deep, and 18″ borehole 300 feet. The waste of water that existed previously has been checked to a great extent of late.	540,682‖	91,293¶	—
			Average quantity supplied in 24 hours, **Gallons** .. .. .. **631,975** £ s. d. ‖ Revenue, per annum 4,991 1 3 ¶ ” ” 2,789 17 7 Shipping, &c. 109 18 0		

DUNFERMLINE.—MEMO. AS TO DUNFERMLINE WATER WORKS.—The Glensherup scheme was commenced in 1877 and completed in 1881. The flow of water is 1¼ million gallons per diem. Cost of scheme, £66,000; expended on extensions within Burgh, laying enlarged pipes, and other works not included in Parliamentary estimate, £3,000; borrowed money includes £35,000 at 4¼ per cent., and £35,000 at 4⅝ per cent.; total, £70,000. This is repayable by way of annuity in 30 years, the annual payments of principal and interest—£2,075 3*s.* 2*d.*, £2,106 4*s.* 2*d.*—amounting to £4,181 7*s.* 4*d.* The first instalment of principal was paid in May 1882. In addition to above there are payable, annuity to shareholders of the Dunfermline Water Company, £296 14*s.*, and interest on prior and subsequent loans (£9,950 at 4 per cent.) £398—in all £694 14*s.*

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). — Dividends and Interest (Companies).		
			£	£ s. d.	£		
14,963	17,084 Outlying villages 8,040 25,124	Of Dunfermline only for Public Rate £54,000, and for Domestic Rate £30,000. Value of other places supplied, not known.	1,052	1,200 9 10	3,689	1. Public Rate— 4*d.* in the £ on rental (owners) £900, and sum voted by Town Council from the "Common Good of the Burgh" and in aid of the Water Rates, £300. Total £1,200. 2. Domestic Rate— 1/6 in the £ on rental payable by occupiers. Baths and closets, free. 3. Trade— By agreement and by meter, 4*d.* to 6*d.* per 1,000 gallons.	Robert Donald, *Chairman.* Wm. Chisholm, *Engineer.* John Laudale, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 30th September, 1883, **£5,650**				
		£	£ s. d.	£ s. d.	£ s. d.		
14,944	21,192 (1881) 25,000 (1884)	136,305	3,394 6 1	432 12 11	2,588 7 3	1. None. 2. 6 % per annum on the assessment. 1 bath and 1 w.c. included in Domestic Rate. 3. Trade— By agreement and by meter, 14*d.* per 1,000 gallons.	E. Davies, *Chairman.* H. A. Hill, *Engineer.* T. Somerville Jones, *Clerk to the Board.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 25th March, 1883, **£8,506 19 9** Surplus paid to credit of General District Rate, £2,091 13*s.* 6*d.*				

The estimated annual expenditure for maintenance, including management, feu duties, and taxes, is £1,050, amounting to a gross estimated expenditure of £5,926 1*s.* 4*d.* The present receipts—a public rate of 4*d.* in the £, £900; domestic rate of 1*s.* 6*d.* in the £, £2,250; special charges for supplies for other than domestic purposes, £2,500—in all, £5,650. The income has not for the past two years been sufficient to meet the present expenditure, and a sum of £300 was voted from the Common Good of the Burgh in aid of the rates and charges for each of the years 1881–82 and 1882–83; but it is fully expected that, in a very short time, there will be such a large increase of assessable rental and additional consumption of water, and consequent addition to the revenue, as will balance the expenditure. The Burgh of Inverkeithing and the villages of Charlestown, Limekilns, Aberdour, North Queensferry, Townhill, and Kingseat, have got supplies from the works. The corporation confidently believe that the expenditure will not prove in excess of the resources of the undertaking.—April 1884.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Kilmarnock Water Works Company Acts, 1846, 1866, 1875.	Kilmarnock	The supply is from infiltration through a retentive sand stratum. The storage reservoirs at North Craig and Burntfoot are capable of holding 145 millions. There is no pumping, but the water is delivered at say 180 feet head of water.	—*	—†	—
Capital Cost of Works. Cost of Works—Extensions .. £47,560	Meters in use, 48.	The supply is filtered at North Craig, and considered to be of excellent quality.	Average quantity supplied in 24 hours, **Gallons** .. .. .. **900,000** * Revenue per annum, £2,200 † „ „ £1,573		
			Gallons.	*Gallons.*	*Gallons.*
Tunbridge Wells Local Board (Improvement Commissioners) WaterWorks Act, 1865.	Tunbridge Wells 3,606	The water is obtained (1) from springs in the neighbourhood of Pembury, 3½ miles away; these are collected into a reservoir, from which the water is pumped into a high-level service reservoir, and gravitates over the district, which includes all kinds of gradients; (2) by gravitation from a spring called Tangiers and reservoir near Frant, about 2 miles from the town.	347,820	30,000	—
Under the Tunbridge Wells Water Act the Capital Cost of Works was .. .. .. £100,000 Paid off out of Sinking Fund under Act .. .. 6,425 Actual Capital .. .. £93,575 A further sum of £20,000 was raised under and provided for in the General District Rate with other sanitary loans, and is repaid by equal annual instalments of principal and interest, but not included in the foregoing water works account.			Average quantity supplied in 24 hours. **Gallons** **377,820**		

TUNBRIDGE WELLS.—The water rents or charges were reduced 10 % from Christmas 1879 for water for domestic purpo
supplied to all houses exceeding £20 gross yearly value, and from Christmas 1880 there was a further reduction of 10 % for wa
supplied to all houses exceeding £20 gross yearly value, and from Christmas 1881 the following reductions were again made, 10 %
all houses above £20 gross yearly value ;—

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£	£	£		
22,963	24,978	79,631	881	—	2,600‡ 314 2,914	1. Does not apply. 2. On rental or annual value, 5 %. 3. Trade by agreement and by meter, 1/7 to 3*d.* per 1,000 gals.	Peter Ritchie, *Chairman.* Robt. Blackwood, *Manager.* Robt. Blackwood, *Secretary.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 30th June, 1883, **£8,778** ‡ 8 % Div. on Old Stock ..... £15,000 8 % „ on 4 % Pref. Stock .. 10,000 6 % „ on 4½ % „ „ .. 10,000 £35,000 Mortgage.—Int. £314.				
		£	£	£	£		
19,410	24,309	187,800	3,682	814§	3,798	1. None. But with respect to the £20,000, that is included in the General District or Sanitary Rate of the District, with respect to the principal and interest payable thereon. SCHEDULE OF CHARGES. 2. On gross annual value. Under £10 10*s.* per annum .. 2*d.* weekly. „ £12 „ .. 2*d.* „ „ £15 „ .. 3*d.* „ „ £20 „ .. 4*d.* „ From £20 to £40 „ 7 % per annum. „ £40 „ £60 „ 6½ % „ „ £60 „ £80 „ 6 % „ „ £80 „ £100 „ 5½ % „ Over £100, by agreement. Closets and baths included. 3. By meter, per 1000 gals., 2*s.* 6*d.*	Thos. Barton, *Chairman.* Wm. Brentnall, Assoc.M.Inst.C.E., *Engineer.* Thos. Lewis, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883, **£8,028 5 8** § This amount is increased each year by 5% on previous amount paid off.				

Under £12 rateable value, to be charged 2*d.* per week.
„ £15 „ „ „ 3*d.* „
„ £20 „ „ „ 4*d.* „
Being a reduction of one penny per week,

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. — Capital Cost of Works.	Townships included in Water Limits. — Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
			Gallons.	*Gallons.*	*Gallons.*
Eastbourne Water Works Company's Acts, 1859, 1875, 1881. *Capital Cost of Works.* To December 1883 .. .. .. £130,000	Eastbourne Hailsham 4,000 houses supplied 60 meters in use	The water supply has, since 1859, been in the hands of the Eastbourne Water Works Company. There are three reservoirs of the united capacity of five million gallons; the largest is 400 feet above sea level, in the vicinity of Beachy Head. The water is pumped up into these reservoirs from deep wells passing through the chalk. A new well and pumping station has been recently completed for the supply of the district, as empowered by the Company's Act of 1881, the water being pumped from the green sandstone, headings being driven at different depths from 90 to 120 feet.	1,260,000	*Nil*	40,000
			Average quantity supplied in 24 hours, **Gallons 1,300,000**		
			Gallons.	*Gallons.*	*Gallons.*
Whitehaven Local Board (Trustees) Water Works Acts, 1848, 1864. *Capital Cost of Works.* Cost of Works and Extensions, 25th March, 1883 .. .. .. £46,170 Paid off (Sinking Fund) .. .. 2,200 Balance due £43,970	Whitehaven 4,668 houses supplied 90 meters in use	The supply is from Ennerdale Lake. Gravitates 9½ miles from the lake to the service reservoir; capacity, 1,000,000 gallons. The Act authorises a draught of one million per diem.	700,000*	200,000†	—
			Average quantity supplied in 24 hours, **Gallons 900,000**		

	£	s.	d.
* Revenue (per ann.) ..	1,788	1	10
† Baths, Meter Supply, and Ships	2,627	16	2
	£4,415	18	0

EASTBOURNE.—An Act of incorporation was granted to the district of Eastbourne in 1883, and the first mayor chosen was Mr. George Ambrose Wallis, M. Inst. C.E., who has been connected with the undertaking since its commencement, and who has designed and completed the latest extension. The inhabitants are rapidly increasing, independently of a large fluctuating season population,

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
		£	£	£	£		
10,400	24,000	130,000	About 48 % on receipts, 5,204	—	6,314	1. Does not apply. 2. On annual rack rent or value. Charges (Act 1859) per annum. One w.c. allowed. Exceeding £5, 10, 20 but not exceeding £5 .. 2*d.* per week. 10 .. 7½ per cent. 20 .. 6 „ — .. 5 „ Baths (fitted), 2*s.* per quarter; w.c.'s (beyond one), 1*s.* 3*d.* per quarter. 3. By meter, 1*s.* per 1,000 gallons. For flushing, 9*d.* „	Wm. Currey, Esq., *Chairman.* Geo. Ambrose Wallis, M. Inst. C.E., *Engineer.* F. Alfred Currey, *Secretary.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 31st Dec., 1883, **£11,518** Dividend paid 5½ % on Share Capital. Past dividends, 1877-1878, 5 %; 1879, 1880-1881, 6 %; 1882, 5½ %.				
			£ s. d.	£ s. d.	£ s. d.		
18,243	21,300 Outside population supplied 2,100 23,400	57,366	1,016 5 5	1,476 17 2‡	1,800 0 4	1. None. 2. When the full net annual value of any dwelling-house exceeds £6, a public water-rate will be charged upon such amount per cent. as may be found necessary when each new rate is made yearly (not exceeding 6 per cent. per annum). Below £6 Rates. Exceeding £2, 3, 4 but not exceeding £2 .. 3*s.* 4*d.* per ann. 3 .. 4*s.* 2*d.* „ 4 .. 5*s.* „ 6 .. 6*s.* „ Baths and closets, 6*s.* and 4*s.* for each additional. Warehouses, lock-up shops, and offices, one-fourth rate of dwelling-house equal value. 3. Trade (by meter), 8*d.*, 7*d.*, 6½*d.*, 6*d.*, 5½*d.*, 5*d.*, and 4*d.* per 1,000 gallons. Shipping, 1*s.* per 100 gallons, 9*d.* for every additional 100 gallons, or fractional part.	Augustus Helder, *Chairman.* John Shanks Brodie, *Engineer.* John Collins, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 25th March, 1883, **£4,427 7 7** ‡Bond paid off £1,000. Balance, extension of mains.				

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Gosport Water Works Company Acts, 1858, P.O. 1872, P.O. 1883. *Capital Cost of Works.* Cost of Works and Extensions .. £35,262	Alverstoke No. of houses supplied, 3,742 No. of meters in use, 55	The supply is from artesian wells in the Hampshire basin by three steam engines and pumps— One .. .. 50 H.P. One .. .. 30 H.P. One .. .. 40 H.P. The quantity of water pumped at Bury Cross throughout the year averages about 320,000 gallons per day of 16 hours.	*Gallons.* 282,466*	*Gallons.* 27,534†	*Gallons.* 10,000
			Average quantity supplied in 24 hours, **Gallons .. .. 320,000** * Revenue per Annum, £2,928 17 2 † ,, ,, £1,281 15 11		
Peterborough Corporation Water Works Provisional Order, 1876. *Capital Cost of Works.* £90,138 13*s.* 6*d.*	Peterborough Municipal Borough 3,121	The supply is derived from springs in the oolite formation near Braceborough Spa. The water is obtained from a well at Wilsthorpe, near Essendine, 16 miles from Peterboro'. The works were completed in 1879. The water is pumped from the well into a covered reservoir of 1 million gallons capacity at Obthorpe Hill, which affords a head of about 140 feet to the district supplied. An 18-inch main conveys the water to Peterboro'.	*Gallons.* 345,000	*Gallons.* 30,000	*Gallons.* 50,000
			Average quantity supplied in 24 hours, **Gallons 423,800**		

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§ GOSPORT.—(New Works).—In the prosecution of these works the services gratuitously rendered by Mr. Wright have been most conspicuous, and are considered by his co-directors well worthy of some substantial consideration. (Report, Christmas 1883.)

and Residential Towns in Great Britain and Ireland.

<table>
<tr><th colspan="2">Population.</th><th rowspan="2">Present Rateable Value of Townships.</th><th colspan="3">Expenditure and Revenue.</th><th rowspan="2">1. Public Rate in the £, levied in support of Undertaking.
2. Scale of Water Rates or Rents (Domestic Supply).
3. Trade (Meter Supply).</th><th rowspan="2">Governing Body in charge of Works.</th></tr>
<tr><th>Census, 1871.</th><th>Census, 1881.</th><th>Working Expenses per annum.</th><th>Annual Instalment of Capital paid off (Corporations).</th><th>Interest and Annuities (Corporations).
Dividends and Interest (Companies).</th></tr>
<tr><td>22,610</td><td>21,581</td><td>£
47,061</td><td>£ s. d.
1,297 0 6</td><td>£
—</td><td>£ s. d.
2,744 13 11‡</td><td rowspan="2">1. Does not apply.

2. Annual Value or Rent defined to be the "Gross Annual Rental" as assessed in the poor rate (one closet included).

<table><tr><th colspan="4">Annual Value or Rent.</th><th>Per Annum.</th></tr><tr><td></td><td></td><td></td><td>£</td><td>£ s. d.</td></tr><tr><td colspan="3">Not exceeding</td><td>8</td><td>0 8 8</td></tr><tr><td>Exceeding</td><td>£8</td><td>,,</td><td>,, 10</td><td>0 12 0</td></tr><tr><td>,,</td><td>20</td><td>,,</td><td>,, 25</td><td>1 8 0</td></tr><tr><td>,,</td><td>40</td><td>,,</td><td>,, 45</td><td>2 12 0</td></tr><tr><td>,,</td><td>45</td><td>,,</td><td>,, 50</td><td>2 16 0</td></tr><tr><td>,,</td><td>50</td><td>,,</td><td>,, 55</td><td>3 0 0</td></tr><tr><td>,,</td><td>65</td><td>,,</td><td>,, 70</td><td>3 14 0</td></tr><tr><td>,,</td><td>70</td><td>,,</td><td>,, 75</td><td>4 0 0</td></tr></table>
Baths, 5/-, 7/6, and 10/- per annum.

3. Trade—
Scale by meter.
2/- down to 1/- per 1,000 gals.</td><td rowspan="2">The Rev. Edward Burney, *Chairman.*

Arthur Wright,§ *Managing Director.*

Horatio Compigné, *Secretary.*</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 2 and 3) for the year ending 31st December, 1883,

£4,083 2 4

<table><tr><th></th><th colspan="2">Share Capital.</th></tr><tr><td></td><td>£</td><td>£</td></tr><tr><td>‡Dividend, 10 %</td><td>22,100</td><td></td></tr><tr><td>,, Pref.</td><td>4,900</td><td></td></tr><tr><td>,, 7 % New</td><td>2,300</td><td></td></tr><tr><td></td><td></td><td>29,300</td></tr><tr><td>Debentures, 5 %, 4½ %, & 4 %</td><td></td><td>6,500</td></tr><tr><td>Total Capital</td><td></td><td>£35,800</td></tr></table></td></tr>
<tr><td>16,310</td><td>21,228

22,500
(1884)</td><td>87,642</td><td>£ s. d.
1,177 17 3</td><td>£ s. d.
1,432 11 8</td><td>£ s. d.
3,528 9 11</td><td rowspan="2">1. Portion of General Borough Rate of 5/-

2. Scale of Water Rates for private dwellings including "one" water-closet, and exclusive of fixed baths (5 % highest charge)—

<table><tr><th>Where the Poor's Rate Assessment does not exceed.</th><th>Charge per Annum.</th></tr><tr><td>£5</td><td>5/-</td></tr><tr><td>6</td><td>5/8</td></tr><tr><td>7</td><td>6/4</td></tr><tr><td>25</td><td>18/4</td></tr><tr><td>50</td><td>35/-</td></tr><tr><td>75</td><td>51/8</td></tr><tr><td>100</td><td>71/-</td></tr></table>
Lowest charge (£200) 3½ %.

Where the owner is rated instead of the occupier, he will be assessed on a reduced estimate of ⅞ of the ***net annual value*** of the premises.

W.C. (extra), 2/- Baths, 2/-

3. Trades (by meter)—
1/6 per 1,000 gals., 50—100 gals.; down to 6*d.* per 1,000 gals., when the consumption exceeds 5,000 gals. per quarter.
Railways 4½*d.* per 1,000 gals.</td><td rowspan="2">Wm. Barford, *Chairman.*

J. C. Gill, Assoc.M.Inst.C.E., *Engineer.*

———— *Town Clerk.*</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">Gross amount of Water Rates and Rents (included in items 2, and 3) for the year ending March 25th, 1883,

£1,551 0 7</td></tr>
</table>

PETERBOROUGH.—The works were only completed in 1879, and the normal balance between expenditure and receipts cannot be fairly depended on yet; the receipts for current year, March 1884, are £2,050.

Statistics of Water Undertakings supplying large Manufacturing

Special Acts. Capital Cost of Works.	Townships included in Water Limits. Number of Houses supplied.	Description of Works and Source of Supply.	Water supplied daily.		
			Domestic Supply.	Trade Purposes.	Flushing, &c.
Llanelly Local Board Water Works Acts; Public Health Act, 1848; Local Government Board Act, 1858, 1865. *Capital Cost of Works.* Cost of Works and Extensions £85,500 Paid off (Sinking Fund) .. .. 23,635 Balance due.. .. £61,865	Llanelly 2,500 houses supplied 36 meters in use.	The supply is from streams, and impounding the waters of the Lliedi. The potential limits are calculated at about 2 millions.	*Gallons.* 1,334,000*	*Gallons.* 850,000†	*Gallons.* —
			Average quantity supplied in 24 hours, **Gallons** .. .. **2,184,000** Compensation .. *Nil* £ *Revenue per annum .. .. 1,600 †Meter supply and shipping.. 1,900 £3,500		
Tredegar Local Board Water Works Acts, 1882. *Capital Cost of Works.* Paid Tredegar Coal and Iron Company, under Sir Frederick Bramwell's Award (1883) .. £21,420	Tredegar 1,804 Out of 2,260	The water works consist of a storage reservoir, which at the present moment is capable of holding about 15 million gallons, and is supplied by an underground conduit, which enters the southern end of the reservoir, and proceeds in a southerly direction along the contour of the hillside for 400 or 500 yards. The water passes out of the storage reservoir into another underground conduit, and terminates in a service reservoir, holding about 1½ million gallons; from thence it passes into a couple of filter-beds, which may be used together or separately, and from which the town is supplied by means of cast-iron pipes in the usual way by gravitation. The capacity of the filter-beds is about 350,000 gallons, and there is no storage of filtered water. The main conduits are connected throughout their whole length with underground subsidiary conduits, which tap the subsoil springs and collect a portion of the rain.	*Gallons.* 96,000	*Gallons.* 62,800	*Gallons.* 3,200
			Average quantity supplied in 24 hours, **Gallons** **162,000**		

and Residential Towns in Great Britain and Ireland.

Population.		Present Rateable Value of Townships.	Expenditure and Revenue.			1. Public Rate in the £, levied in support of Undertaking. 2. Scale of Water Rates or Rents (Domestic Supply). 3. Trade (Meter Supply).	Governing Body in charge of Works.
Census, 1871.	Census, 1881.		Working Expenses per annum.	Annual Instalment of Capital paid off (Corporations).	Interest and Annuities (Corporations). Dividends and Interest (Companies).		
15,021	19,750	£ 55,000	£ 650	—	£ 4,150	1. Public Water Rate, 8*d.* in the £—£1,442 2. Domestic Water Rate 1*s.* in the £ on rental. Baths and closets included. No separate charges.	Wm. Rosser, *Chairman.* Geo. Watkeys, *Engineer.* John Jennings, *Town Clerk.*
			Gross amount of Water Rents and and Rates (included in items 1, 2, and 3) for the year ending 25th March, 1883, **£4,942**				
16,989	18,771	43,303	£ *s.* *d.* 337 4 0*	£ *s.* *d.* —	£ *s.* *d.* —	1. None. 2. Domestic rates 2*d.* per week for houses not exceeding £6 per annum rental, 7% upon houses not exceeding £30 rental, and 6% upon houses exceeding this sum. 3. Trades (by special agreement and by meter), 5*d.* and 4½*d.* per 1,000 gallons. (Iron and Coal Company.)	Wm. Davies, *Chairman.* John Williams, *Engineer.* John Alex. Sheppard, *Town Clerk.*
			Gross amount of Water Rates and Rents (included in items 1, 2, and 3) for the year ending 31st March, 1882, **£1,075 11 0**				

* This left £738 7*s.* net value, which was to be capitalised in Mr. Marten's estimate to pay 3¾% or 26⅔ years' purchase = £19,685. (Proceedings in Tredegar Arbitration, 1883.)

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INTRODUCTION.

LONDON AND PROVINCIAL WATER SUPPLIES.

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2.—LONDON WATER SUPPLY 41

LONDON WATER SUPPLY.

STATISTICS OF WATER UNDERTAKINGS SUPPLYING THE CITY OF LONDON AND METROPOLITAN DISTRICTS 49

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PROVINCIAL WATER SUPPLIES.

STATISTICS OF WATER UNDERTAKINGS SUPPLYING LARGE MANUFACTURING AND RESIDENTIAL TOWNS IN GREAT BRITAIN AND IRELAND 59

Local Board	Aberdare	122
Town Council (Police Department)	Aberdeen	86
Joint Committee of Contributory Boards	Ashton-under-Lyne, Dukinfield, Stalybridge, Mossley, and Hurst	82
Corporation	Barnsley	106
,,	Barrow-in-Furness	96
,,	Bath	100
Belfast Water Commissioners	Belfast	72
Corporation	Birkenhead	92
,,	Birmingham	62
,,	Blackburn	88
,,	Bolton	74
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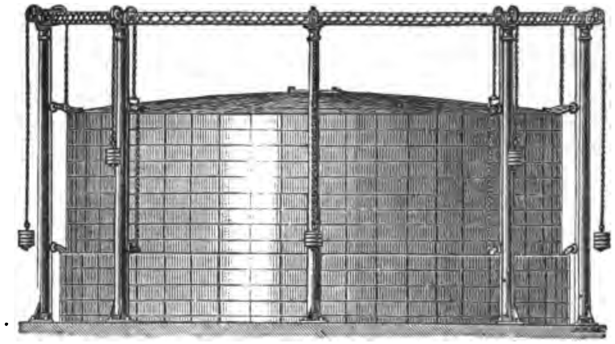

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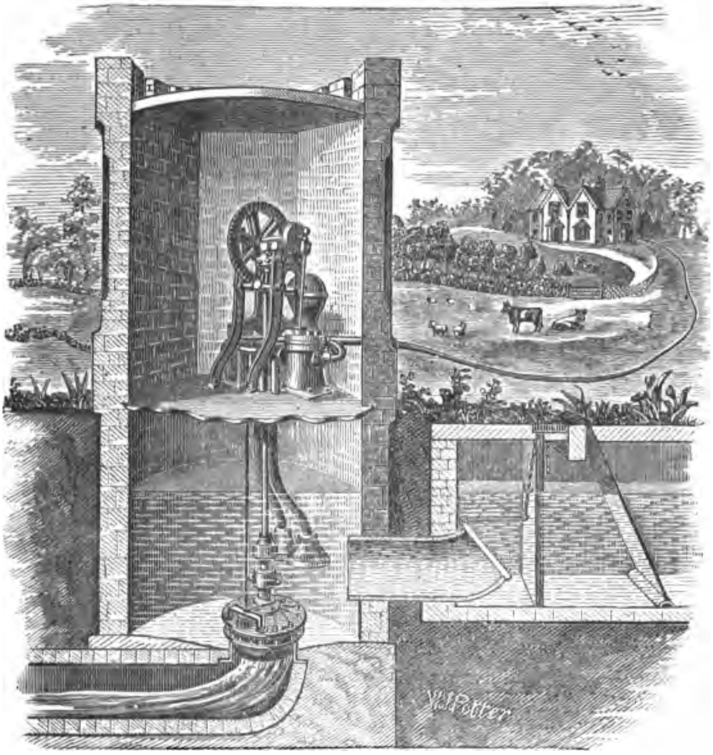

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